

JPRS 75623

2 May 1980

USSR Report

CONSTRUCTION AND EQUIPMENT

No. 9

FBIS

FOREIGN BROADCAST INFORMATION SERVICE

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CONSTRUCTION

BANKING, FINANCIAL ASPECTS OF CONSTRUCTION INDUSTRY

Role of Stroybank

Kiev RABOCHAYA GAZETA in Russian 12 Mar 80 p 2

[Article by G. Khmel'nitskiy, manager of the Ukrainian Office of Stroybank of the USSR, Kiev]

[Text:] The bank and construction. What is the basis of the relationships of these two seemingly polar instances? Some do financing and others, having received the money, erect factories and plants, apartment buildings and kindergartens. But this is the external aspect of the matter. New economic methods of managing construction have been introduced experimentally since ancient times. What do they include?

For a long time the traditional method of the operating efficiency of builders was the cubic meters of excavated soil and concrete laid, the tons of installed production equipment and the kilometers of communications lines laid. Accordingly, the customers usually paid the cost of individual types and stages of construction work independently of the real readiness of the production capacities as a whole. The leaders sometimes contained contracting organizations which knew how to "grasp" more of the so-called advantageous jobs, that is, those which provide solid production.

But after all, industry--the main user of construction products--is not interested in individual stages, but it must be completely ready to operate the object. It is this principle that prevents dispersion of funds, an increase of uncompleted construction and has now become the main factor in the relationships of Stroybank and Mintyazhstroy [Ministry of Heavy Construction] of the Ukrainian SSR. Accounts between them are settled only after completion of construction, while prior to this all work was performed at the expense of funds received in the form of loans. The real stimulus was also the percentage of the bank credit in the principles of the profit formation of construction organizations. They are oriented toward turnover of finished objects. If construction was completed on time or ahead of schedule, a minimum percentage was paid for the loan. If the builders did not finish within the established deadlines, this sum increases as a direct function of the lag permitted.

Stroybank credits helped the ministry to appreciably improve its own main economic indicators. Whereas fewer than half of planned objects were put into operation in 1977, the specific weight of completed construction projects comprised approximately 70 percent last year. The wage per worker has increased, personnel turnover has been reduced and overconsumption of the wage fund was reduced.

We stimulate in every manner possible those who are oriented toward the final results of work. Thus, the volumes of capital investments allocated for starting construction projects have increased by more than one billion rubles during the past four years, at the suggestion of the bank. Monies were allocated only in those cases when startup could not be guaranteed without them. On the other hand, Stroybank delayed dispersion of funds. Due to the absence of technical documentation, newly begun objects worth more than 250 million rubles were excluded from the plans.

We especially monitor those who are working on starting objects. If the established plans are not fulfilled, the bank refuses to issue credits for non-starting objects. For example, we stopped issue of loans to 42 contracting organizations last year due to interruption of the starting program.

Are these sanctions against the careless effective? As indicated by practice, yes. Thus, the Donetsk Regional Office of Stroybank took under special monitoring all the contracting organizations working on a compensation construction project--the Gorlovka Production Association Stirol. There was a monthly review of how the funds were being assimilated and whether previously adopted decisions were being fulfilled. A lag was noted at one time. And issue of credits to the construction administrations, except those which went to cover the contractor's expenditures, was temporarily stopped. These stiff conditions forced the builders to adopt effective measures directed toward improving the situation. And here is the result: all the starting capacities of the Production Association Stirol were turned over for operation within the deadline.

It is frequently necessary to cool the ardor of those rushing for advantageous jobs. Here is an example. Construction Administration No. 5 of the Ukrzapadgazstroy Trust overlapped its own general plan of operations. At the same time fulfillment on its starting objects comprised only 79 percent. It naturally became necessary to correct the situation. The Ivano-Frankovsk Office of Stroybank took a hand in the matter. And the fine was effective. The administration concentrated its main forces and funds on starting objects.

And even so Stroybank is not omnipotent. Its punitive and stimulating functions do not always achieve their effect. And this is why: along with lack of balance in material and technical support, there are deficiencies in planning of capital investments and errors by planning organizations are committed. Because of this, the general contracting trusts

Krivorozhsevrudstroy and Krivorozhstroy were required to carry out additional work worth eight million rubles to put the first starting complex of the Northern Concentration Combine into operation. And these millions were previously not taken into account by the Yuzhgiproruda Institute [expansion unknown] which compiled the project. That is why the second complex had to be pinched for funds. And this led to interruption of the starting deadline. Equipment costing more than 18 million rubles was not installed on time.

Other times one is surprised: both the customer is solid and the object planned by him is seemingly important. But the attitude toward it is very poor. Let us say that the Dneprodzerzhinsk Production Association Azot has planned to start urea production in the fourth quarter of 1979. However, the contractor has not been provided with the necessary drawings. And the proper front of work has not been presented. In this regard the builders essentially began the work somewhere at the end of August. This was little and they then had to knock about the site in search of work. But imported equipment worth 15 million rubles was thus left lying.

The question involuntarily arises: did the Association Azot need a urea plant? If so, then why were they not prepared and why did they not permit the builders to operate normally? If there is no hurry, why designate the construction project as a starting object and thus divert people and materials needed somewhere else?

Poor organization of construction production itself inflicts much harm. The truth should have long ago become inexorable: available resources must be directed primarily toward starting objects. And even so some good for nothing contractors still ignore this golden rule.

Capacities to produce 20,000 motors had to be put into operation at the Khar'kov Tractor Motor Plant. Trust No. 86 of the Khar'kovpromstroy Combine erected the additional areas. One would expect that it would concentrate the necessary forces here. However, this did not happen. Approximately 200 workers and construction materials worth more than 190,000 rubles were diverted to secondary construction projects. As a result the engines did not come off the assembly line. Moreover, the trust overfulfilled the plan by 1.5 million rubles on non-starting objects.

This same story was repeated at the Kirovograd Typewriter Plant where the general contractor was the Kirovogradmashtyazhstroy Trust. Capacities to produce products worth 20 or more million rubles provided by the plan were never put into production.

As a result of wasteful and at the same time a careless attitude toward the matter, many ministries and agencies reached 1980 with a large volume of uncompleted construction. Thus, it exceeded the normal level 1.8-fold throughout the Ministry of the Construction Materials Industry. "Uncompleted projects" at the ministries of the food industry, ferrous metallurgy and so on increased significantly.

The errors are seemingly carefully studied and taken into account. Unfortunately, the lesson has not been learned by many ministries and agencies of the republic. They have begun to consider their own drafts of capital investment plans for 1980 in which the same sad errors are committed as those which last year led to interruption of starting a number of important national economic objects.

As was emphasized at the November (1979) Plenary Session of the CPSU Central Committee, the decisions on construction of production objects should be made only after realistic consideration of all the factors which provide continuous operation, the presence of materials, equipment, transport and a work force. Primary significance should be devoted to reconstruction and technical re-equipping of existing enterprises. This is economically advantageous. This is why one would think that similar conclusions would find corresponding reflection in the presented drafts of plans. However, the desire to construct as much as possible continues to predominate among managers. Moreover, expenditures for reconstruction and technical re-equipping were reduced from 455 to 274 million rubles at the Ministry of Ferrous Metallurgy of the Ukrainian SSR. This same pattern has also been noted at a number of other ministries.

The people say: don't start construction until you have counted your resources. One or another objects were planned for starting--they were provided with everything necessary to be put into operation within the established deadline. This did not happen. One frequently encounters a complete tie-in between that which is planned and that which actually emerges in the presented plans. The Ministry of the Coal Industry of the republic reduced by 62 million rubles the volumes for construction and installation work compared to the established five-year plan for 23 of its transfer objects. One asks: how can one tie the ends together here? It is interesting that approximately 70 newly begun construction projects with volume of construction and installation work worth 16 million rubles are provided in this same draft of the plan.

Minchermet [Ministry of Ferrous Metallurgy] also operates in a similar spirit. A little less than 30 million rubles' worth of work was not turned over in 1980 for 13 starting complexes. And regardless of how paradoxical, they propose beginning 61 construction projects anew, allocating approximately 19 million rubles for this purpose.

The spottiness of the plans is also alarming. Putting basic funds into operation during the first six months comprises only 13 percent of the annual program at the Ministry of Power Engineering and Electrification of the Ukrainian SSR. Throughout Minchermet, it is suggested that still fewer construction projects--approximately eight percent--be completed during the same time. In this case all the most important capacities are planned for starting during the last quarter. And this type of planning is a guarantee of interruptions and an all-hands job and a clear prerequisite for interruptions.

They knew at the Ministry of Local Industry of the Ukrainian SSR as early as 1976 that six enterprises and shops for production of musical instruments had to be constructed and reconstructed. But the construction organizations erected only two objects in past years. And now when, as they say, the train has left, Minmestprom plans to postpone introduction of the Chernigov plant to 1981 and generally does not mention construction of the Odessa and Poltava plants. Along with this, a newly begun plant has been included in the sector for 1980.

In showing concern about development of the sector, one should not lose sight of the real prospect. And did this happen at the Rubezhan Production Association Krasitel'? The complex was turned over in January for starting-adjusting operations. But the problem of providing the phthalic anhydride plant with raw material has not yet been solved. Introduction of this enterprise is planned only in 1981-1982.

There is no doubt that the main number of new construction projects included in the drafts of plans for this year are needed by the national economy. However, there are also those for construction of which one can wait and thus create conditions for putting the truly needed ones into operation. The Ministry of Light Industry of the Ukrainian SSR, for example, decided that a large cotton-spinning plant at Dubrovitsa, Rovenskaya Oblast, had to be erected today. And one may think, but why? After all, the Korosten' Cotton Spinning Plant was put into operation in 1974. And it is used at only 80 percent capacity. Moreover there is the similar Dolinsk plant, which should have been completed last year, but, judging by the omitted funds, will not start operation even this year. This is a paradox and that's all.

The desire to spend money on new construction has not left some managers of sectors and agencies. Again and again requests for additional crediting come in to the quite valid comments that funds should not be dispersed. But to provide timely introduction of new capacities into operation, especially those which determine progress in the leading sectors of the national economy, the main forces must be concentrated on them in order not to be faced with the dilemma--to save an object or write it off, transferring it like a bator to a future year.

Yes, there are still many difficulties--planning, material and technical and finally psychological--in the path of perfecting the economic mechanism in construction. But they must be overcome even now. Because the last day of this year will become the last one for an effective method of planning, financing and organization of capital construction. We are turning from experiment at Mintyazhstroy of the Ukrainian SSR to wide introduction of a new system of economic methods of management. And the bank will then largely determine the discipline of a construction project.

Economic 'Lever'

Moscow GORODSKOYE KHOZYAYSTVO MOSKVI in Russian No 3, Mar 80 pp 11-12

[Article by A. N. Udal'tsov, Chief of the Zhdanov Regional Housing Administration]

[Text] Problems of efficient use of material, labor and financial resources and intensification of the role of economic levers were reflected in the decree of the CPSU Central Committee and of the USSR Council of Ministers "Improving planning and intensification of the effect of the economic mechanism on increasing production efficiency and work quality." These problems are of important significance for further development of the housing industry--one of the most important sectors of a modern city.

The Communist Party and the Soviet government, showing concern about increasing the well-being of the people, are devoting a great deal of attention to improvement of the comfort of housing and technical maintenance of it. The budgeted cost of apartment buildings of the municipal fund of the capital now comprises more than 10 billion rubles. The state annually spends more than 340 million rubles on all types of repair and maintenance of housing. That is why an increase of the effectiveness of using funds directed toward development of this sector is an important task of economic managers and planning-economic services.

The increased technical equipment of modern buildings required an increase of maintenance expenditures. On the other hand, introduction of means of automation and the latest engineering devices to housing leads to a reduction of the number of operating and repair personnel and to an increase of labor productivity. The balance of expenditures is regulated by reducing the specific weight of wages in the overall volume of expenditures and by increasing appropriations for introduction of engineering innovations at the modern stage of technical re-equipping. However, even with introduction of the most perfected engineering systems, one cannot get along without people in housing management. The number of personnel can become a stable value at a specific stage. Therefore, the problem of efficient use of income and operational redistribution of it becomes acute along with modernization of the processes of operating the housing fund.

Frequently being in unequal position, housing-operating organizations receive different income, but they generally bear approximately identical expenses per square meter of area. Careful study of this situation and a search for new stimuli to increase income in the final analysis provides a significant saving and permits improvement of the financial situation of housing management. A system for relative economic calculation now exists in housing-operating organizations. Financing of capital repair, the specific weight of which comprises more than 46.4 percent in the overall volume of expenditures subject to Glavmoszhilupravleniye [Main Housing Administration of Moscow], is made from the state budget. Therefore, capital repair

should approximate the category of capital investments. It may then be possible to regard housing-operating organizations as cost-accounting types since economic calculation has already been disseminated in the sphere of routine maintenance and operation.

Income from the activity of housing-operating organizations as a result of their conversion to the new system is increasing constantly. They reached their highest sum--more than 185.5 million rubles--in 1978. The income is increasing due to the increase of housing area and the effect of the economic levers of cost-accounting. Thus, in 1978 alone, the income from one square meter of paid-for area was increased from 25.1 to 25.3 kopecks per month as a result of reducing the debt on the apartment payment, increasing miscellaneous income and increasing the responsibility of workers of the planning-financial services and improved planning. And as a result income for operation increased from 24.7 to 25.1 kopecks during the same period calculated per square meter of area. The quality of apartment building maintenance was improved because of this.

The income of housing-operating organizations, as is known, consists of apartment and lease payments, collections from tenants of uninhabited rooms to cover operating expenses and payments of the populace for communal services and miscellaneous (fines for missed payments, turnover of scrap metal and so on).

Analysis of the income structure indicates that apartment rent occupies the greatest fraction--an average of 52.6 percent. The total miscellaneous income and distribution of expenses for maintenance of intraapartment systems comprises 18.5 percent. The specific weight of the rent payment is equal to 16.6 percent and collections from tenants for uninhabited rooms to cover operating expenses is 12.3 percent. Apartment rent is the most stable source of income in all housing-operating organizations. Payments of the public for communal services and miscellaneous income are also stable. At the same time the specific weight of rent payment is not identical in different housing-operating organizations. It is higher in the central regions and considerably less in the regions of new construction projects. For example, the fraction of rent payment comprises 36.2 percent of the total income at the Bauman Regional Housing Administration, while it comprises only 5.8 percent at the Krasnogvardeysk Regional Housing Administration. The specific weight of collections from tenants for uninhabited rooms is accordingly not identical.

In 1978, 16 regional housing administrations and associations (50 percent) and 227 zhek (housing operation office) and dez [expansion unknown] (33.2 percent) were loss organizations. The main reason for the loss was the low specific weight of income from tenants caused by the territorial disposition of these organizations. Even in the profitable Zhdanov Regional Housing Administration, for example, 43.8 percent of the zhek are planned-loss types. And the total loss from the activity of these organizations throughout the city comprised 14.8 million rubles at Glavmoszhilupravleniya in 1978. It was completely made up by the income of profitable agencies.

Taking into account that a reduction of expenditures to operate housing area leads to premature wear of basic funds and creates inconveniences to the population, they may be reduced. Therefore, we feel that economic levers must be introduced which would balance the financial condition of all housing-operating organizations regardless of their territorial disposition and which would contribute to achievement of their conditional profitability.

The losses due to operational activity in the new regional construction projects are now made up by redistribution of the income of profitable organizations. But the absence of a standard for redistribution of profits deprives the interests of different organizations to increase profitability. Thus, zhek No. 11 of the Zhdanov Regional Housing Administration is able to cover its own operating expenses even with fulfillment of the income plan by 57 percent. But the required funds for any losing housing-operating office cannot be allocated. And then the losing zhek does not settle up with the contracting organizations and does not pay wages to workers and employees. Therefore, subsidies are required. On the one hand, redistribution of income is adequate for a profitable organization so that it is interested in achieving a plan. On the other hand, economic levers must be found which would force a losing organization to strive for profitability.

We suggest that a system of standards for income redistribution be proposed for this. Its essence consists in establishing a norm of funds allocated in strict proportional procedure to make up the planned losses as income is received. The profitable organization can calculate the total deductions for any intermediate time by dividing the product of the normal deductions of the planning period and the sum of the current income by the value of its own planning expenses.

The economic lever, which obligates a profitable organization to receive income in strict accord with the plan and which interests it in exceeding the plan if its own expenses have to be increased, becomes effective in this case. The stimulus for overfulfilling the income plan will be above-plan profits which should partially or totally remain at the disposal of the profitable organization to cover additional investigations on operation of the housing fund.

Planning-loss and housing-operating organizations should receive subsidies as a proportional function of fulfilling the plan of their own income. The total planned losses during a specific time interval can be calculated by dividing the product of the index of current income and the subsidy norm by the sum of the planned expenditures of the losing organization. Thus, if an unprofitable zhek does not fulfill the plan of its own income, then it will not receive a subsidy of the normative sum in total volume and cannot make up its losses.

The proposed system will stimulate the housing organizations to more fully realize their own capabilities to mobilize funds by timely collection of

payments, releasing unused living areas for rent and reducing unplanned expenditures. The norm of income redistribution is an important economic lever in strengthening the financial condition of housing-operating organizations.

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Centralization of Accounting

Moscow BUKHGALTERSKIY UCHET in Russian No 2, 1980 pp 31-34

[Article by G. A. Volod'kin, chief bookkeeper of the Northern Construction Administration]

[Text] A good bit has been written about the advantages of centralization of bookkeeping, including that in construction organizations. Authors and specialists involved in this problem were convinced in practice of the feasibility of reorganizing accounting on the basis of its centralization on the scale of trusts and the equivalent construction enterprises. The experience of centralizing accounting at the Construction Trust No. 153 of Glavtashkentstroy, at the Alma-Ata Housing Construction Combine, at the Housing Construction Trust of Shakhty, at the Prommontazh Trust of the Lithuanian SSR, at the Daugavpils General Construction Trust of the Latvian SSR, at the Construction Administration of the Bratsk Lumber Industry Complex, at the construction organizations of Glavvostoksibstroy, at the General Construction Trust No. 18 of Minpromstroy [Ministry of Industrial Construction] of the Belorussian SSR, Orsha, and at some other organizations was specifically related on the pages of the journal BUKHGALTERSKIY UCHET. Despite the different approach to problems of centralization, the participants of discussing this problem are unanimous in the main idea: centralization is an effective means of increasing the quality of accounting in construction.

The operating experience of the centralized accounting office of the Northern Construction Administration permits us to state that centralization of accounting creates prerequisites for increasing its operative and analytical nature since document turnover and the total volume of technical work in accounting are significantly reduced and conditions are created for increasing the level of methodological work. Therefore, we feel that work must be intensified primarily on centralization within trusts for a sharp improvement of the quality of accounting in construction, without attempting to relate this work to the possibilities of mechanization of accounting since centralization provides important advantages even without mechanization.

Despite the fact that work on centralization of accounting in construction has been carried out for a long time, the majority of trusts and equivalent organizations still continue to have a decentralized accounting structure.

Reduction of the analytical nature of accounting in construction is related to reducing the capabilities of accounting departments with a constant relative and absolute reduction of personnel under conditions of manual accounting. Unfortunately, accounting workers are frequently forced to strengthen objects of accounting and to reduce analytical reserves. At the same time life requires ever increasing operational nature and detail of accounting and it has become necessary to account for expenditures in construction not only by strengthened cost-accounting subdivisions but also smaller subdivisions (the sections of foremen, brigades and so on).

The existing situation requires accounting by objects and steps of work completed. Well-founded suggestions are advanced for improving analytical accounting of direct expenditures, procurement-warehousing and other expenses and to increase items of analytical accounting. In other words, the quality of accounting which should correspond to the increasing requirements of the production administration must be constantly improved.

An important means of improving accounting and of increasing its analytical and operational nature is mechanization and automation of it. Many construction organizations are successfully utilizing modern computer installations and ever more progressive forms and methods of accounting designed for use of perforation and electronic technology, are being put into practice. The constantly increasing network of machine-accounting installations and improvement of the machine stock create conditions for expanding the sphere of their activity. At the same time there are facts when construction organizations (and not only construction organizations), having modern computer centers at their disposal, do not use them for a long time to solve accounting problems or solve only large, but individual problems such as accounting for materials and calculations with workers and employees and so on.

The greatest effect from mechanization and automation of accounting can be achieved with a complex approach to this problem, i.e., with introduction of total mechanization and automation. We feel that one of the reasons for the created situation is the practice which permits separation of accounting at ASUP (Automated enterprise management system) into individual blocks by so-called complex subsystems of program orientation such as "Control of material and technical resources," "Management of labor resources," "Management of production" and so on, where the problems of accounting are regarded as auxiliary. This practice, we feel, not only does not contribute to acceleration of mechanization and automation of accounting, but contradicts the existing main propositions according to which accounting is regarded as an independent management function. "Dissolution" of accounting in the ASUP system by other subsystems reduces the capabilities of the accounting office and specifically of the chief bookkeepers, to fulfill the tasks entrusted to them. Therefore, we agree with the opinion of those specialists who regard it compulsory to distinguish accounting as an independent subsystem of the ASUP.

Speaking about the need to expand the analytical capabilities of accounting, one should however emphasize that an unjustified (for any case) increase of analytical sections and objects of accounting must not be permitted since this is related to an increase in the volume of documentation, interpretation of documents and other laborious work. It is necessary that the reserves achieved by the accounting office as a result of centralization and mechanization of accounting be used efficiently. It is very important in this case, for example, that the actual expenditures have a base for analysis and checking, while the read data are formulated without additional groupings and proceed logically from the accounting data.

One of the most important problems in organization of analytical accounting of expenditures for construction and installation work is determination of the objects of accounting. As was mentioned above, this type of accounting is now carried out in two directions--by cost-accounting subdivisions (SMU, a section and so on), and by objects and stages of construction. One should take into account in this case that far from all operations on an object and at a stage are fulfilled by the same specific executor--the object of accounting by the cost-accounting feature. Therefore, double accounting of expenditures must usually be carried out.

The need for object by object and stage by stage accounting is now related mainly to the need to have a result from turning over work by objects and stages. Special very complex and laborious accounting registers were developed for this purpose. Specifically, many construction organizations are utilizing the experience of Glavzapstroy of Minstroy (Ministry of Construction) of the USSR, which was earlier related in the journal BUKHGALTERSKIY UCHET No 2, 1971.

Will object by object accounting of expenditures yield the effect for which it is designed and is high laboriousness of conducting it justified? We feel that it is now. The chief accountant of Glavzapstroy of Minstroy of the USSR A. I. Goin, who has done much to organize object by object accounting, noted at the All-Union Scientific and Technical Conference on Problems of Improving Accounting Under Modern Production Management Conditions, that accounting for the cost of construction and installation work can be achieved by cost-accounting sections rather than by objects (see BUKHGALTERSKIY UCHET No 8, 1975). We agree with this opinion.

First, the actual expenditures only for work completed through one's own efforts are reflected in the budget of the general contractor with an increase of specialization in construction and with the ever-increasing number of participants of erecting objects, while their earning expenditures are reflected by the estimated cost (the actual expenditures are shared among several SMU or sections even within a trust).

Second, a significant part of the expenditures between objects is distributed either indirectly or by calculation. For example, procurement-warehousing and transport expenses, overhead expenses, expenses for mechanization with time payment and so on.

Materials are listed to objects by the distribution made by the producer of the work in material accounting in many construction organizations. The expenditures on stages of a conditional nature are even greater in accounting.

We feel that the existing situation in the part of managing object by object accounting of expenditures in construction requires review. If it turns out that object by object accounting cannot yet be done away with, the question of distributing the principle of distribution of actual expenditures among objects in proportion to the estimated cost may be discussed.

Organization of accounting for expenditures for production by the feature of production subdivisions (by shop, section and so on), which has been called "boiler room," and irresponsible, is frequently placed in opposition to organization of accounting by articles, orders and other objects. This opposition in construction is not always justified in our view. Specialization of construction led to the fact that, in accounting by subordinate cost-accounting subdivisions, we at the same time are separating it into types of work or structural members. Specialized subdivisions are now being created within the trusts for excavating operations, communications lines, finishing work and so on. Specialized subdivisions, for example, sections for installation of forms, on installation of fittings, installation of floors and roofs, installation of carpentry products and so on are also being created within these SMU. We feel that under these conditions object by object accounting has more features of a "foundation pit" than accounting by cost-accounting sections. Different methods of estimating materials and accounting for expenditures on manufacture and transport of them are used in different construction organizations. But perhaps the prevalent method is that of accounting for materials and calculations for them by the prices of industry with special accounting of deviations from these prices and their indirect distribution. Deviations are formed at two levels in this case: in the supply organizations (UPTK [expansion unknown], KMTS [expansion unknown] and so on) and in production construction subdivision. The fraction of deviations from accounting prices related indirectly to cost comprises a significant specific weight with this method, while the actual cost of materials listed for production frequently exceeds their estimate.

Calculations between supply organizations (within the trust) and production subdivisions can be made by prices included in the estimates (or approximate prices), but no higher, with centralized transport of materials to objects through UPTK or KMTS. This permits organization of the work of supply organizations on the principles of cost accounting, concentrating accounting for all (or almost all) transportation-procurement expenses and calculation of manufacture. This also frees the production subdivisions and cost-accounting brigades of expenditures on manufacture of materials which exceed the estimated costs or those included in the calculated costs while the results of unsatisfactory work on manufacture are reflected there where overexpenses are permitted--in the UPTK or KMTS.

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CONSTRUCTION

RESIDENTIAL HOUSING CONSTRUCTION PROBLEMS, PROSPECTS REVIEWED

Rural Housing

Moscow EKONOMICHESKAYA GAZETA in Russian No 48, 1979 p 4

[Article: "Housing Construction in Rural Areas"]

[Text] The CPSU Central Committee and USSR Council of Ministers have adopted a decree entitled "Further Development of Factory Production of Wooden Panel Buildings and Sets of Wooden Parts for Buildings Made of Local Materials in Rural Housing Construction."

In order to develop factory production of residential buildings for rural areas the CPSU Central Committee and USSR Council of Ministers have urged the Central Committees of the communist parties of the Union republics, kray and oblast party committees, the Councils of Ministers of the Union republics, USSR ministries and departments, and local Soviets of Peoples Deputies to consider all-out development of the production base of industrial housing construction in rural areas one of their most important tasks. This is to be accomplished by building new and expanding existing enterprises that produce modern wooden panel buildings and sets of parts for buildings with walls made of local building materials.

The USSR Ministry of Timber and Wood Processing Industry, various other USSR ministries and departments, and the Councils of Ministers of the Union republics have been given assignments to insure that industrial enterprises and interkolkhoz construction organizations reach production figures of 7.1 million square meters of total area of wooden factory-manufactured buildings by 1985 and 11 million by 1990, with corresponding figures for sets of wooden parts for buildings with walls made of local building materials — 8.5 and 12.2 million square meters of total area a year. During this period plans envision new construction and expansion of existing facilities at 78 home-building and wood processing enterprises, 23 machine building and metal working plants, and 31 building materials enterprises.

Problems in Uzbekistan

Moscow STROITEL'NAYA GAZETA in Russian 30 Jan 80 p 1

[Article by T. Almatov, deputy manager of the Uzbek SSR office of Stroybank: "They Themselves Are to Blame for the Breakdown"]

[Text] Last year Uzbekistan did not fulfill its plans for introduction of housing. A review of the quarterly results of work by contracting organizations shows that irregular rhythm plagued the sector from the first months on. It resulted not only from planning failures, but also from the lack of coordination of action by clients. Despite the decision of the USSR Council of Ministers, they are not turning over capital for housing and social-cultural-domestic construction to a single client. This gives rise to various difficulties. About 40 percent of the buildings included in the 1979 plan were being constructed with outdated or individual designs which are 30 rubles per square meter of area more expensive than standard designs.

The current statute on payment for the costs of site preparation, where compensation for the cost of removing structures is not given until after construction financing opens, also retarded housing construction. This procedure should be changed by allocating the sole client his own working capital to pay for such costs. Then they can be related to construction costs later.

Problems in Moscow Oblast

Moscow STROITEL'NAYA GAZETA in Russian 30 Jan 80 p 1

[Article by N. Agafonov, deputy chief of the administration of large-panel and housing-civil construction of the Main Administration of Construction in Moscow Oblast: "When Others Let You Down"]

[Text] Last year was the first year in many that the Moscow Oblast Main Construction Administration did not fulfill its plan for introduction of housing, and the shortfall was considerable: The people of the oblast failed to receive 636,000 square meters of planned housing.

The truth is that the home-building combines (there are 10 of them) of the KPD [Large-Panel Home-Building] Association were let down by suppliers from the Main Administration of Building Materials of Moscow Oblast and other departments. Because of the shortage of floor beams, parquet sheets and strips, and linoleum 210,000 square meters of flooring was not laid. We failed to receive 570,000 cubic meters of keramzit and gravel, 4,600 tons of metal, and 28,000 tons of cement called for by the plan. Of course, this had an effect on the production of prefabricated reinforced concrete articles and putting together sets of them.

About 69,000 square meters of housing was lost through the fault of clients. The Main Administration of Capital Construction of the Moscow Oblast Executive Committee was formed a year ago and still has just half of the appropriations designated for housing construction. Our main administration must deal with 200 independent builders. They are all having considerable difficulties with questions of preparation for construction.

Large-Scale Moscow Housing

Moscow STROITEL'NAYA GAZETA in Russian 1 Feb 80 p 3

[Article by V. Fershter, deputy chief of the Moscow State Association of Large-Panel Home-Building of Glavmosstroy: "Their Own Reconstruction Formula"]

[Text] Each year the home-building combines of the capital introduce more than 2 million square meters of housing, more than half of the volume of housing construction at Glavmosstroy [Main Administration for Housing and Civil Engineering Construction in the City of Moscow]. At the same time they steadily improve their own production facilities without stopping work or even reducing the pace.

Moscow workers today are making the transition to manufacturing standardized parts from the Uniform Catalog. The Vostryakovo Reinforced Concrete Parts Plant of Home-Building Combine No 3 was the first to make the transition. Plant workers rebuilt the enterprise over a four-year time. They built new shops for "dobors" [translation unknown] and manufacturing elevator shafts. They expanded the finished products warehouses and primary rolled products shop, where the mills were extended and finishing conveyor lines added. The use of organosilicon paints to finish wall panels demanded the addition of an enamel warehouse and room to manufacture the paints.

The plant now produces 16-story buildings of the promising P 3/16 series, which adorn new housing developments in the capital.

Re-equipping the enterprise enlarged its capacities, reduced labor expenditures at the construction site, and increased the factory readiness of parts. New production points to finish ceiling and interior wall panels, for example, made it possible to give the construction site panels ready for painting and wallpapering.

The level of housing construction is qualitatively improved. The basic elements of the new series of buildings (exterior wall panels, ceiling panels, elevator shafts, and stairway landings) have received recognition for good quality. The home-builders have set a large task for themselves, to build a residential building that completely meets the

requirements for the State Mark of Quality. A. Tikhonov's brigade has already completed the installation of such a building on the Mozheysk Highway. Finishing work there will begin in late February.

The home-building combines of Moscow are reorganizing production on the run, so to speak. DSK-1 [Home Building Combine No 1], the largest combine in the country and producer of series 43 buildings, has begun building 16-story series P 44/16 buildings with parts from the standardized catalog. It is better than the previous improved apartment layout. The corner and curved modules make it possible to diversify construction. Buildings of the new series can already be seen along Khoroshevo Highway and in Strogino and Lianozovo. The workers of DSK-1 will build 75,000 square meters of the buildings this year, and next year they intend to install more than 500,000 square meters.

Each of DSK-1's four plants specializes in the production of particular parts and has close ties with the other production subdivisions. Therefore, all the enterprises of the combine had to be redesigned. At the Tushinskiy Reinforced Concrete Component Plant, which turns out ceiling panels, the primary production shops had to be re-equipped. In addition plant workers built a reinforcement shop, a machine repair shop, a concrete mixing center, and five storage rooms, as well as redoing the utilities system.

The Khoroshevo plant added a ventilation module shop, an inserted parts shop, and storehouses for binding materials and finished products. They are now building a new shop to produce sanitary engineering booths. When it is launched the capacity of the plant will increase to 60,000 articles a year (in the future it will supply sanitary engineering booths to all Moscow home-building combines).

It is hard to find a common formula for the reconstruction of existing enterprises. Each reinforced concrete component plant has its own particular working conditions, and so each one has found the most acceptable way to re-equip its own production with minimum impact on the working rhythm of the enterprise. At the Tushinskiy plant, for example, in an open area next to the old reinforcement shop workers built two bays, moved production work into them, and then began re-equipping the main room. The new bays were later joined with the shop, doubling its capacity.

They took a different approach at the Khoroshevo plant. The ventilation module shop temporarily began producing sanitary engineering booths while the old facility where the booths were manufactured was removed and a large new building built in its place.

Minimizing complications during reconstruction requires considerable coordination between people working in the shops and people re-equipping

them. Understanding this, plant workers actively assist construction workers. The collective of the Rostokinskiy Reinforced Concrete Component Plant, for example, supplies them with concrete, mortar, and hoisting mechanisms.

The workers of DSK-2 will soon switch to high-rise buildings also. Preparatory work has begun for re-equipping production. The 12-story buildings which DSK-2 puts up today are already obsolete. They will be replaced by 16-, 18-, and 22-story buildings of promising series based on space planning elements from the Uniform Catalog which can be used to create variations of the buildings differing by configuration and assortment of apartments. To accomplish this fundamental reconstruction will be carried out at the Ochakovskiy Reinforced Concrete Component Plant; production facilities will be completely rebuilt. About 10 million rubles has been allocated for technical re-equipping the enterprise. One of the new shops is already producing output this year.

Before the end of the 10th Five-Year Plan more than 20 million rubles of capital investment will be spent to rebuild the home-building enterprises of Glavmosstroy. This will permit Moscow home-builders to make the full transition to manufacturing parts from the Uniform Catalog and building new series of residential buildings next year.

Cooperative Housing Construction

Moscow STROITEL'NAYA GAZETA in Russian 24 Feb 80 p 3

[Article by L. Kiryushina: "Skazka and Other Housing Construction Cooperatives - How the Rights of Working People to Housing Are Being Realized with the Help of Housing Construction Cooperatives"]

[Text] Everyone knows, of course, that to join a cooperative involves considerable expense. But, as they say, the end justifies the means, for one is acquiring comfortable living conditions.

Ten years ago I visited the administration of housing records and distribution of the Moscow City Executive Committee and was shown facts and figures which gave me an idea of shareholders in housing construction cooperatives (HCCs) of the early 1970's. Most of the members were young people with families or planning to establish families; in addition there were partial families resulting from divorce.

Having conceived the idea of writing an article about shareholders today, I went to the old address for information.

"Why, are you really so out of touch?" they said in surprise. "There has been an administration of cooperatives in the city for two years now."

On business days, Tuesdays and Thursdays, the cozy detached building on Bakunin Street where the administration is located becomes crowded. People pour in from the 32 rayons of the capital. It turns out that the divisions of housing records and distribution of the rayon executive committees no longer handle cooperative affairs. Since April of last year the administration of cooperative housing has seen more than 80,000 people. These are not just people who want to become shareholders; also among them are the chairmen, bookkeepers, and directors of HCC's. After all, this organization oversees about 1,900 cooperatives with 600,000 members in Moscow.

Needless to say, the information and reference service of such an "energetic" institution must be well organized. Starting this year a 10-number telephone will answer many questions from Moscow citizens (like the "09" service), and an automatic ASU-3 device will appear in the entryway of the house. It will be like those devices installed in the metro and at railroad terminals with lighted panels showing various documents and rules.

But for now the rush of questions each day falls on the duty officer (there is such a position): What, where, when, why, how much, in what way? Hundreds of Muscovites want answers to these questions.

The 1980 cooperative member. Any person who has lived in the capital for a long time may become a member on the condition that he has seven square meters or less of well-appointed housing space per family member. To do this one must sign up, that is, be put on a waiting list at the job site or at the administration of cooperative housing of the Moscow City Executive Committee.

In the last two years the administration has received requests from about 300 organizations whose employees want to join HCC's. Among them are the Academy of Sciences USSR, the Metro, the First Clock Plant, the ZIL Plant, the Kauchuk Plant, the Krasnyy Proletariy Plant, and USSR Gosstroy. Half of the 15,000 families, associated with these organizations, who are waiting for new housing are requesting one-room apartments while the other half want two-room apartments. There is no waiting list for three-room apartments in Moscow. But among those who have submitted their documents to Bakunin Street the ratio is slightly different. Two-thirds need one-room apartments and one-third need two-room apartments.

The housing waiting list. Who among us has been on such a list and can forget how tortuously slow time passes during this period of our life. The only persons not authorized to wait, to be on the waiting list for cooperative apartments, are persons on rayon waiting lists for state housing. I was shown the file of engineer K. In January of last year he was registered at the Kuntsevskiy Rayon executive committee; the two-room apartment had become too crowded for six of them.

But this family preferred to wait several years to join a cooperative. In September engineer K submitted his application to the administration of cooperative housing and immediately became a shareholder in the Pakhra HCC.

I was also shown the files of people who have been on HCC waiting lists for 10 years and still cannot make up their minds about a new place of residence. There are very few of them, maybe 20 and no more. For a waiting list of 31,000 families that is just a drop in the ocean. One example is pensioner A. She lives in a communal apartment in the center of the city. To the suggestions of the inspector move to Medvedkovo, Lianozovo, the Yaroslavl Highway region, or Sviblovo she refuses. She is waiting for an apartment inside the Sadovoy Circle. At the present time, however, cooperative buildings are not being constructed in this preserve zone because new construction there is restricted. Land in new regions of the capital is being assigned for cooperative building.

Pensioner A. is not the only Muscovite who feels nostalgia for the buildings, the street, and the apartment where they lived many years. A few years ago some friends of mine took the move from Novoslobodsk Street to Veshnyaki-Vladychino as a tragedy. Now they think Perovskiy Rayon is the best in the world. Although a change of address is inevitable when receiving a new apartment, workers at the administration of cooperative housing make it a rule not to move people too far from their old place of residence.

For this purpose the entire Moscow region has been arbitrarily broken into six regions with roughly the same number of people on HCC waiting lists in each. Last year cooperative societies were formed in Strogino, Babushkino, Mar'ino, Lianozovo, and Yasenevo. Thus, the Skazka HCC in Strogino has accepted residents from Voroshilovskiy, Kievskiy, Kuntsevskiy, and Tushinskij rayons and the Pakhra HCC in Yasenevo has accepted persons from Chermushkinskiy, Oktyabr'skiy, Gagarinskiy, and Krasnogvardeyskiy rayons. HCC's are being organized this year in Strogino, Mar'ino, Chertanovo, Sadovniki-Kolomenskiy, Vykhin, and Novogireyevo. The shareholders in them are residents of rayons near these developments.

However, this procedure does not in any way prevent a person from moving to the opposite end of town, for example an inhabitant of Vykhin moving to Mar'ino or an inhabitant of Biryulev to Lianozovo. A person on the list is not prohibited from selecting his rayon of residence and, as we have seen, no one pushes him to decide quickly.

It is another matter that this right is very seldom used. It appears that the reason is that the sole client, the Main Administration of Capital Construction of the Moscow City Executive Committee, allocates the Muscovites' favorite buildings, assembled from components from the Uniform Standardized Catalog, for cooperative housing. This insures

the person on the waiting list of a comfortable apartment in any rayon of the city. In 1979 88 percent of the buildings allocated to HCC's were "catalog" buildings and in 1980 it will be 96 percent.

According to calculations by employees of the administration of cooperative housing the waiting list will move much faster if 42 percent of the apartments in HCC buildings are one-room and 44 are two-room. This ratio is not being maintained at the present time. Almost 5,400 families will become shareholders this year. Of them 2,309 will receive two-room apartments and 1,593 will receive one-room apartments. What effect does this have on the overall waiting list? It will be reduced by 19 and 8.5 percent respectively. As we see, there is an obvious disproportion here. Small families and single people, and there are 16,000 of them, are forced to wait almost two years longer than those who want two-room apartments.

Of the buildings allocated to cooperatives today the "catalog" P44-16 and P43-16 buildings correspond best to the demographic composition of HCC waiting lists. They have 43 percent two-room apartments and 38 percent one-room apartments. The division of cooperative and garage construction of the Main Administration of Capital Construction of the Moscow City Executive Committee informed us that P44-16 buildings did not appear in Moscow until last year, and at the present time P43-16 buildings do not account for more than 10 percent of the total volume of housing under construction. However, judging by the plans of home-building combines, these will become the most common buildings under construction in the city by 1982. Thus, we see that the shareholders do not have much longer to wait.

This might be the end of the story, if a new concept had not appeared in January of last year. This was the privileged cooperative. In the decree of the CPSU Central Committee, USSR Council of Ministers, and AUCCTU entitled "Further Strengthening Labor Discipline and Reducing Worker Mobility in the National Economy," the managers of associations, enterprises, and organizations were given the right, with the consent of the trade union and taking into account the recommendations of labor collectives, to direct incentive fund capital to providing free material aid and partial repayment of bank credit for cooperative housing construction.

I telephoned the managers of the trade union organizations of several large Moscow enterprises which had submitted applications for HCC's and asked them whether they intended to establish privileged cooperatives. Unfortunately, none of them were ready to answer this question. But the practice does already exist in the country. I will give as an example the Kuznets Metallurgical Plant.

Young families are given preference for joining the HCC there. To get a better understanding of what kind of privileges we mean, let us

take the example of electrical welder B. Zhilin's family. For the three-room apartment assigned to him an initial payment of 2,220 rubles had to be made. He was given a 15-year credit for 1,110 rubles from the fund for sociocultural measures and housing construction, which was half of the required payment. He received 333 rubles free of charge from the material aid fund. Thus, B. Zhilin paid only about 700 rubles of the cost of the share from his own savings.

What can you say? Such enterprise support enables young people to get on their feet quickly. It keeps them in production jobs and helps them acquire high qualifications. Persons who have worked at least five years at a combine may become members of a privileged cooperative. For young married people this time is reduced to two years.

Kamchatskaya Oblast

Moscow STROITEL'NAYA GAZETA in Russian 24 Feb 80 p 3

[Article by O. Vyatkin, Petropavlovsk-Kamchatskiy: "In Honor of the Holiday"]

[Text] About 10,000 well-appointed apartments with a total area of more than 375,000 square meters had been built in Kamchatskaya Oblast in the last two years.

The decisive contribution in this has been made by the collective of the Kamchatka DSK, the initiator of competition to fulfill the five-year program by the 110th anniversary of the birth of V. I. Lenin. A meeting of workers of the enterprise was held recently. Those in attendance at the meeting resolved to achieve the highest labor productivity on "Red Saturday," to do 75,000 rubles worth of construction at installation work, and to completely finish the five-year plan for introduction of housing.

11,176
CSO:1821

CONSTRUCTION

COMPLETION OF VARIOUS CONSTRUCTION PROJECTS VIEWED

Resort, Rest Facilities

Moscow STROITEL'NAYA GAZETA in Russian 6 Feb 80 p 4

[Article by GlavUKS (Main Administration for Capital Construction) AUCCTU chief N. Gryzlov: "Our Common Concern"]

[Text] This past year, sanatoria, boarding houses, rest houses, tourist hotels and centers to handle 22,500 people were put into operation. Builders in the Kirgiz and Armenian union republics, Altayskiy Kray, and Lipetskaya, Omskaya, Ryazanskaya, Pskovskaya, Kaliningradskaya, Rostovskaya and Ul'yankovskaya oblasts met their annual assignments.

However, construction organizations of the main contractor ministries and departments worked at considerably below capacity at trade-union construction sites.

Plan fulfillment is described by the following data, in 1,000 rubles.

| | 1979 contract work plan | Actual Jan-Dec fulfillment | % fulfillment of the annual assignment |
|---|----------------------------|-------------------------------|--|
| total | 204,017 | 178,877 | 87.7 |
| including: | | | |
| USSR Ministry of Industrial Construction | 43,198 | 33,881 | 78.4 |
| USSR Ministry of Construction | 30,026 | 25,907 | 86.3 |
| USSR Ministry of Construction of Heavy Industry Enterprises | 24,940 | 20,012 | 80.2 |
| USSR Ministry of Rural Construction | 5,600 | 3,596 | 64.2 |
| Main Administration for Housing and Civil Engineering Construction in Moscow City | 40,387 | 47,156 | 116.8 |

[continued on following page]

1979 contract Actual Jan-Dec % fulfillment

| | | | |
|--|-------|-------|------|
| Main Administration for Construction in Moscow Oblast | 2,529 | 1,362 | 53.9 |
| Main Administration for Housing, Civil Engineering and Industrial Construction, of the Leningrad Gorispolkom | 4,900 | 4,354 | 88.9 |

The concluding year of the five-year plan, a year of intense labor, a year of active preparation for the forthcoming 26th Congress of the Communist Party of the Soviet Union, is moving forward throughout the country with a precise, confident pace. Builders of trade-union health resorts have begun it from a good starting base. This past year, they released for operation dozens of sanatoria, boarding houses, rest houses, tourist hotels and centers, sanatoria for parents with children, Olympiad-80 facilities, housing for health resort workers, and kindergartens and day nurseries for their children.

Ahead lie complex tasks: we are faced with utilizing 308 million rubles in capital investments, 235 million of which is in construction-installation work, and starting-up trade-union health resorts to handle 27,000 people.

The final year of the 10th Five-Year Plan has begun. Last year's results of the labor of builders at trade-union projects have been summed up. On the whole, they are gratifying: an additional roughly half a million people will be able to obtain trade-union travel authorizations to sanatoria, boarding houses, rest houses and tourist centers. Builders carried out the program for putting sanatoria for parents with children into operation where the facilities are built using funds earned by workers during union-wide communist Saturdays.

The construction-installation work plan for Olympiad-80 facilities was carried out with room to spare. The cycling track and road in Krylatskiy and "Young Pioneers" stadium, both in Moscow, the first line of the hotel complex in Imaylovo, Salyut Hotel in Troparevo, the sports training facility in Podol'sk...all were built to excellent quality standards.

However, the figures in the table published here are not in tune with an optimistic key. What lies behind them?

Organizations of the USSR Ministry of Industrial Construction, for example, failed to put a boarding house for 1,000 people into operation near Truskavets (Drogobychpromstroy Trust, manager M. Vronskiy, of the Glavl'vovpromstroy), sleeping facilities at the sanatoria imeni Gor'kiy for 334 people in Kislovodsk (No 17 construction-installation administration of Kislovodskstroy Trust, administration chief Z. Lerman), sleeping facilities for 768 at Svetlana boarding house in Sochi (No 3 trust of the Glavsochispetsstroy, manager B. Pugachevskiy), the Usinskaya tourist center for 600 people in Kuybyshevskaya Oblast (No 4 construction-installation trust of the Glavrednevolzhskstroy, manager S. Kostylev).

Considerable delay in carrying out the plan at trade-union projects was permitted this past year in Kazakhstan, Latvia and Turkmenistan and in the Buryatskaya, Kareli'skaya and Yakutskaya autonomous republics.

The reasons for unsatisfactory plan fulfillment lie first of all in the inadequate attention paid to health-related construction projects by individual contractor organization leaders. Suffice it to say that instead of 150, only 30 people are presently working to build the tourist hotel in Aktyubinsk, whose start-up has been disrupted (Aktyubzhitstroy Trust of the USSR Ministry of Construction of Heavy Industry Enterprises, trust manager P. Bondarenko). Since November of this past year, work has been stopped at the Sinegorskiye Mineral Waters sanatorium in Sakhalinskaya Oblast, although this facility has been under construction since 1969 (Glavdal'stroy, main administration chief V. Peschanskiy). The sanatorium complex at Arshan health resort in Buryatskaya ASSR has been under construction since 1969. Over the decade, three-fourths of the total cost of the construction-installation work has been utilized (Glavvostokstroy, main administration chief T. Matsul').

Unfortunately, this list does not exhaust the number of health resorts long under construction. The reasons for this situation can be stated quite a bit more briefly.

There is delay where the administrations and departments of capital construction of trade-union councils have failed to provide construction sites with planning-estimate documentation and sets of equipment promptly, where little is done to influence the course of trade-union health resort construction.

And a second reason. Life has shown that in those republics, krais and oblasts in which construction and building-materials industry worker trade-union committees have paid insufficient attention to organizing socialist competition and to introducing the brigade contract and leading work methods at trade-union construction projects, the work plan had consistently not been carried out.

This year, health resort builders are faced with making a considerable effort to eliminate those shortcomings, which were referred to by Comrade L. I. Brezhnev, CPSU Central Committee General Secretary and USSR Supreme Soviet Presidium Chairman, at the November (1979) CPSU Central Committee Plenum. We will have to achieve plan balance and stability, accelerated construction with the least expenditures, a reduction in the amount of unfinished construction, and greater work efficiency and quality.

We are faced with putting sanatoria, boarding houses, rest houses and tourist centers into operation in Arkhangel'sk, in L'vovska, Ivano-Frankovskaya, Yaroslavskaya and Sakhalinskaya oblasts, in Tambov, Semipalatinsk, Moscow and Leningrad.

Not easy tasks, but entirely feasible if all participants in the construction of health resorts -- builders, clients and planners -- make the efforts necessary to improve work organization and socialist competition.

Sanatoria Construction Progress

Moscow TRUD in Russian 17 Feb 80 p 4

[Text] How did the main contractor organizations of the ministries and departments work this past year at the most important trade-union construction projects?

| | percentage 1979 plan fulfillment |
|---|-------------------------------------|
| USSR Ministry of Industrial Construction | 78.4 |
| including: | |
| Glavkavminkurortstroy | 68 |
| Glavsochiस्पेtstroy | 96 |
| Glavkrasnodarpromstroy | 71 |
| Glavvosteksibstroy | 59 |
| Glavzapaduralstroy | 56 |
| Glavrednevolzhskstroy | 73 |
| Dagestan administration | 74 |
| Glavyumenpromstroy | 40 |
| Ukrainian Ministry of Industrial Construction | 68 |
| Armenian Ministry of Industrial Construction | 95 |
| Belorussian Ministry of Industrial Construction | 78 |
| Azerbaijan Ministry of Industrial Construction | 103 |
| USSR Ministry of Construction | 86.3 |
| including: | |
| Glavvolgovyatskstroy | 60 |
| Glavprivolzhskstroy | 64 |
| Glavnovosibirskstroy | 89 |
| Glavvladivostokstroy | 66 |
| Ivanovsk administration | 46 |
| Kalininin administration | 54 |
| Chuvash administration | 62 |
| Uzbekistan Ministry of Construction | 129 |
| Georgian Ministry of Construction | 114 |
| Lithuanian Ministry of Construction | 77 |
| Moldavian Ministry of Construction | 118 |
| Latvian Ministry of Construction | 57 |
| Kirgiz Ministry of Construction | 112 |
| Tadzhikistan Ministry of Construction | 73 |
| Turkmen Ministry of Construction | 47 |
| USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] | 80.2 |
| including: | |
| Glavsevzaptiyazhstroy | 80 |
| Glavreduralstroy | 90 |
| Glavyuzhuralstroy | 92 |
| Glavkuzbasstroy | 34 |
| Glavkrasnoyarskstroy | 71 |
| Glavdal'stroy | 68 |

| | |
|--|-------|
| Ukrainian Mintyazhstroy | 65 |
| Kazakhstan Mintyazhstroy | 61 |
| USSR Ministry of Rural Construction | 64.2 |
| including: | |
| Glavsevzapadsel'stroy | 45 |
| Glavuralsel'stroy | 32 |
| Glavsevkavsel'stroy | 30 |
| Belorussian Ministry of Rural Construction | 80 |
| Azerbaijan Ministry of Rural Construction | 91 |
| Kirgiz Ministry of Rural Construction | 73 |
| USSR Ministry of Power and Electrification | 62.2 |
| USSR Ministry of Transport Construction | 76.2 |
| Main Administration for Housing and Civil Engineering Construction in the City of Moscow | 116.8 |
| Glavmospromstroy | 97.0 |
| Main Administration for Construction in Moscow Oblast | 53.9 |
| Main Administration for Housing, Civil-Engineering and Industrial Construction of the Leningrad Gorispolkom | 88.9 |

In the fourth year of the 10th Five-Year Plan, sanatorium-health resort and tourist facilities increased their capacity by 22,000. Builders in Kirgizia, Armenia, Altayskiy Kray, and in Lipetskaya, Omskaya, Ryazanskaya, Pekovskaya, Kaliningradskaya, Rostovskaya and Ul'yankovskaya oblasts coped with their assignments. Sanatoria for mothers and children were built using funds earned by workers during communist Saturdays. A number of Olympics facilities were completed.

But at the same time, other data also figure in the results. Last year, 25 million rubles allocated for construction of health-resort treatment and relaxation facilities was not utilized. Sanatoria, boarding houses, rest houses, tourist centers and hotels to handle 4,500 people were not put into operation.

All ministries building trade-union facilities not only failed to meet the 1979 plan, but they even worked worse than in the previous year, 1978. Because of this, very large projects at very important health resorts were not put into operation. Everyone knows how much patients need travel passes to famed Truskavets. People even come here without passes, rooming with local residents, just to receive the treatments. Truskavets is operated at maximum load the year around. Last year, the Ministry of Industrial Construction met its plan by only 78.4 percent and failed to put into operation a new boarding house for 1,000 at the Truskavets health resort. The party directly to blame was the Drogobychpromstroy trust, manager M. Vronskiy. Other subdivisions of this same ministry have carried over to the following year installation of sleeping facilities at the sanatorium imeni Gor'kiy in Kislovodsk (construction-installation administration of the Kislovodskstroy's No 17 trust, chief Z. Lerman) for 334 people, the sleeping facilities for 768 at the Svetlana boarding house in Sochi (trust No 3 of the Glavsochispetastroy, manager B. Pugachevskiy), Usinskaya tourist center in Kuybyshevskaya Oblast

for 600 people (No 4 construction-installation trust of the Glavrednevolzhskstroy, trust manager S. Kostylev).

Collectives of the USSR Ministry of Rural Construction are working especially slowly at trade-union construction sites. In 1979, they had to their credit only 64 percent of the assignment. Installation of trade-union facilities in the RSFSR Nonchernozem zone was wretched. Only half the plan for the year was carried out. The Novgorodsel'stroy trust essentially did not resume work on construction of the Vazlayakaya tourist center (manager V. Chapala). Only one-fifth of the work for the year was done at the Nizhne-Ivkino health resort construction site (Kirovsel'stroy trust manager Ya. Mil'chakov).

Work tempos of the USSR Ministry of Construction subdivisions slowed. Only 80 percent of the USSR Ministry of Construction of Heavy Industry Enterprises assignment was met. Trade-union facilities were built slowly in Kazakhstan, Latvia, Turkmenia, Karelia, Yakutia, Primorskiy and Stavropol'skiy krays, and in Volgogodskaya, Gor'kovskaya, Ivanovskaya, Irkutskaya, Kemerovskaya and Tyumenskaya oblasti.

The reason for all these phenomena is a disrespectful attitude towards health facility construction projects of the trade unions. The Sinegorskiye Mineral Waters sanatorium has been under construction on Sakhalin since 1969. This tempo is hardly enviable, but complete silence has reigned since November of last year at the sanatorium construction site, for which the Glavdal'stroy is responsible (main administration chief V. Peschanskiy).

The picture is roughly the same at Kuyal'nik health resort in Odesskaya Oblast. Here, the Odespromstroy combine (chief V. Vepritskiy) failed to carry out the construction-installation work plan this past year by nearly 200,000 rubles and failed to put a dining hall to seat 1,000 people into operation. Such a major failure would seem to force Vepritskiy to take steps to improve the situation at the construction site. No way. Today, there are 80 workers employed on the project, instead of the 300 needed.

M. Vronskiy reacted the same way. After failing to start up the boarding house in Truskavets, he contrived to leave 80 workers on the project, instead of the 350 required. An alarming situation has also developed in construction of the Kemerl sanatorium complex in Latvia, the work being done by Yurmalastroy trust (manager D. Silayev).

Thus, circumstances at the most important trade-union health resorts have become more complicated since the first days of the new year, while we are faced with a large program of health-resort and tourist construction in the last year of the 10th Five-Year Plan. We need to put into operation sanatoria, boarding houses and rest houses in Arkhangel'sk, Chuvashia, Tambov, Leningrad, Yaroslavl'skaya Oblast and Sakhalin. This will require the coordinated actions of builders, trade-union organizations, their capital construction administrations and capital construction departments, and better monitoring at the construction sites.

Results Summarized

Moscow BYULLETEN' STROITEL'NOY TEKHNIKI in Russian No 12, 1979 pp 4-5

[Text] At a meeting on 13 September 1979, the USSR Gosstroy collegium reviewed progress in meeting 1979 plan assignments for introducing new technology into construction.

The collegium noted that under the section "Development of Science and Technology" of the USSR State Economic and Social Development Plan, 67 of the 93 assignments were carried out during the first half of 1979 in branches of the construction complex, 25 were partly carried out and one was not carried out. The Ministry of Construction, Road and Municipal Machine Building mastered 12 types of new construction machines. The USSR Ministry of Building Materials Industry mastered the production of nine types of building materials and components.

Twenty-three of 41 assignments on experimental construction were met or overfulfilled, 14 were partly met and four were not met. The following permitted underfulfillment of some of the 14 assignments on introducing individual types of industrial output: the Ministry of Construction, Road and Municipal Machine Building -- on producing sets of machinery, the USSR Ministry of Building Materials Industry -- for producing prestressed cement, the Ministry of Chemical and Petroleum Machine Building -- for producing 40-ton assembly cranes.

The following permitted lag in introducing progressive technology and in the basic indicators of technical-economic level of production: USSR Ministry of Power and Electrification failed to meet 10 of 30 assignments in full and two assignments at all; the USSR Ministry of Construction of Heavy Industry Enterprises -- underfulfillment of three of 26 assignments; the USSR Ministry of Industrial Construction -- underfulfillment of eight of 30 assignments; the USSR Ministry of Construction -- underfulfillment of 17 of 32 assignments; the USSR Ministry of Rural Construction -- underfulfillment of 13 of 24 assignments; the Ministry of Transport Construction underfulfilled 11 of 23 assignments and did not carry out one at all; organizations subordinate to the RSFSR Council of Ministers underfulfilled 19 of 21 assignments and failed to carry out one assignment at all.

In terms of experimental construction, lag was permitted by the USSR Ministry of Industrial Construction, USSR Ministry of Rural Construction, and organizations of the RSFSR and Uzbek SSR councils of ministers. The USSR Ministry of Construction of Heavy Industry Enterprises, USSR Ministry of Rural Construction and Ministry of Transport Construction permitted lag in meeting assignments on introducing computer equipment.

Instead of taking the steps necessary to fulfill and overfulfill assignments set under the new equipment plans, USSR ministries and departments appealed in a number of instances to directive agencies with requests to adjust the

plans downward. Assignments outlined in the plans and approved by the ministries are not always ensuring the necessary results due to low use volumes.

Nonfulfillment of individual assignments is directly connected to poor use of productive capacities. The ministries are making inadequate use of the potential of 168 trusts and the Orgtekhstroy and Orgtekhstrom institutes for accelerating technical progress. These organizations are not yet influencing substantially raising the technical-economic level of construction production and the meeting of new-equipment introduction assignments by construction organizations and enterprises.

There are also serious shortcomings in the organization of planning, financing and material-technical supply when developing and introducing into construction the achievements of science and engineering and leading experience. A number of valuable scientific developments have not found broad application for long periods in practical planning and construction.

The union republic gosstroys have not exercised the necessary supervision of republic ministry and department fulfillment of assignments on introducing new technology and experimental construction and are not doing the necessary work with subordinate planning institutes as concerns ensuring that they introduce scientific and technical achievements more extensively into the plans they develop.

The USSR Ministry of Installation and Special Construction Work, Ministry of Construction of Petroleum and Gas Industry Enterprises, Ministry of Rural Construction and several other ministries are making inadequate use of funds available to them for developing new technology.

The USSR Gosstroy collegium has ordered that:

1. construction ministries and departments:
 - review in their collegia the status of fulfillment of assignments of the new-equipment introduction plan for 1979 and for the 10th Five-Year Plan as a whole and set specific measures to eliminate shortcomings noted and to ensure unconditional fulfillment of plan assignments set by the 1979 and 1976-1980 state plans by subordinate organizations;
 - make fuller use of scientific-technical developments verified in practice and take steps to increase the extent of their introduction by using USSR Gosstroy recommendations sent out in the form of documents of scientific-technical achievement based on completed scientific research results;
 - take steps to expand the manufacture and use of highly efficient new construction components and parts in construction during the current five-year plan, including components made of high-strength concrete, prefabricated reinforced concrete roof panels "span-width" in size, economical shaped-metal structures, glued-wood, asbestos-cement and other efficient components, and also to exclude obsolete and inefficient items from those now being produced;

given agreement in initial data on developing planning documentation for a construction project, ensure the use of the most progressive components;

do more to enlist the aid of scientific research institutes in solving the basic problems of technical progress in construction;

heighten the role of Orgtekhtsroy and Orgtekhtsrom institutes and trusts in introducing the latest achievements of science and engineering and advanced domestic and foreign experience into construction production and the construction industry when developing production plans and other documentation;

provide new-technology introduction plan assignments with the necessary financial means and material resources on a priority basis and in the full amounts required. Use fully the fund for mastering new technology.

2. the USSR Ministry of Construction of Heavy Industry Enterprises, USSR Ministry of Rural Construction, Ministry of Transport Construction and the Kazakh Promstroyniprojekt [not further identified] take the steps necessary to ensure fulfillment of the 1979 plan for putting computer facilities into operation.

3. the union republic gosstroy:

work systematically with subordinate planning organizations to help them ensure the extensive introduction of scientific and technical achievements into the plans they develop;

intensify their monitoring of progress by republic ministries and departments in meeting assignments on introducing new technology and experimental construction as outlined both in the state 1979 plan and in the 1979 plans of the ministries and departments.

4. the main administration, administrations, departments and the Gosgrazhdanstroy [State Committee for Civil Construction and Architecture]:

ensure systematic assistance to the ministries and departments in solving problems connected with eliminating hindrances to meeting assignments in plans for introducing new technology and experimental construction;

when checking the work of construction-installation organizations and enterprises, note the status of their meeting assignments set in the plan for introducing new technology.

5. the Glavstroynauka, Glavpromstroyproyekt and Gosgrazhdanstroy:

intensify their monitoring of progress by ministries and departments in meeting assignments of the plan for introducing new technology, enlisting in this work the appropriate subdivisions of the USSR Gosstroy and the Gosgrazhdanstroy;

quickly inform the ministries and departments about the most significant scientific and technical achievements;

intensify the work of scientific research institute introduction bureaus on assisting construction organizations and enterprises technically on a long-term basis.

6. the Department of Standard Planning and Planning-Surveying Work Organization, the Glavpromstroyproekt and the Gosgrazhdanstroy monitor the use of the most effective construction components in plans being developed, including components using high-strength concrete, high-grade steel, wide-flange I-beams and other effective materials.

7. the Department of Construction Organization and Technology, the Department of Construction Industry, Components and New Materials, the Department of Labor Organization and Rate-Setting, the Glavstroynauka and the Department of Construction Economy render greater methods assistance to Orgtekhstroy and Orgtekhstrom institutes and trusts in improving their work efficiency in terms of using scientific-technical achievements and leading experience in construction production.

8. the Department of Scientific-Technical Information and Publications ensure the broader illumination of the latest achievements of science and engineering recommended for use in construction on the pages of STROITEL'NAYA GAZETA and USSR Gosstroy and copublisher house journals, as well as the publication and distribution of annotated catalogs, technical films, informational and other literature popularizing the leading achievements of domestic and foreign practice.

9. the ministries and departments doing construction planning, with the concurrence of the USSR Gosstroy, set for their subordinate planning organizations 1980 assignments on using the latest achievements of science and engineering and leading experience in their plans.

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CONSTRUCTION

ASPECTS OF RURAL, URBAN CONSTRUCTION IN UZBEKISTAN

Rural Reconstruction

Moscow ARKHITECTURA SSSR in Russian No 12, Dec 79 pp 36-39

[Article by Architect V. Nemirovskiy: "The Integrated Reconstruction of Uzbek Villages"]

[Text] The substantial rise in the material well being and the spiritual needs of the workers of the Uzbek countryside, and the increase in the amount of rural capital construction brought about by the significant development of irrigation and agriculture in the republic have been the basis of an extensive program for the integrated reconstruction of the Uzbek villages.

At present, capital investments into rural construction in the republic comprise almost one-half of the total amount of capital investments for construction, and each year more than 1 million m^2 of total housing area, around 200 nurseries, 150 schools, and many other cultural and service buildings are built in the villages. Construction of utilities is developing, and the territories of the sovkhoz and kolkhoz settlements are being upgraded and landscaped.

In the republic there has been a significant spread of rural cooperative housing construction. At present, 547 housing construction cooperatives are operating in the villages, and for them over the last 3 years 2,125 houses have been built with a total area of 213,000 m^2 . Housing construction in the new settlements and the settlements to be developed by the cooperatives is one of the basic factors contributing to the realization of the program to eliminate the separate farms, and the volume of this construction is constantly rising and by the end of the Tenth Five-Year Plan will reach 250,000 m^2 of housing a year.

The integrated reconstruction of the villages helps to solve a number of urban development problems. Among them of particular urgency is the shaping of a rural living environment and an architecture of today's Uzbek village corresponding both to the specific socioeconomic conditions and to

present-day aesthetic notions. For this reason constant work is carried out in the republic to improve this.

At present comprehensive plans are being worked out for the regional planning of groups of administrative rayons, and these represent a qualitatively new level in solving the questions of settlement and intervillage services, and other questions. Plans are being successfully worked out for the planning and building up of the kolkhoz and sovkhoz settlements and during the current five-year plan these will be provided for all the rural settlements in the republic which are to be developed.

As a result of the systematic work done to improve standard plans, of considering the natural climatic and local domestic features in the various zones of the republic, of expanding the range of plans, and improving the technical-economic indicators and aesthetic qualities, the list of plans in use in the republic has been significantly updated. At present there are 123 standard plans for residential buildings and 65 plans for public buildings. In addition, a large range of plans is offered for cooperative construction (around 70), and for industrial construction on virgin lands. A number of plans have been worked out for experimental and model construction and these have been approved by the inhabitants and often reused. These include residential buildings of the Khorezm and Solntse type, a national type of bathhouse, and so forth. In the experimental plans, attempts are made to creatively employ the traditional procedures of national architecture.

These procedures are also employed in the standard plans. The introduction of new plans into designing and construction practices helps to improve the comfort of the rural workers, to improve the architectural appearance of the rural settlements, to save metal, cement and lumber in construction, and to reduce construction costs. Thus, the use of new plans together with other measures to increase the effectiveness of designs has made it possible in 1978 for the institutes Uzgiprosel'stoy [Uzbek State Design Institute for Rural Construction], Uzgiprosel'khoz [?Uzbek State Design Institute for Agriculture] and Uzmezhholkhozproyekt [?Uzbek Design Institute for Interkolkhoz Projects] to achieve a reduction in construction costs of more than 15 million rubles.

The good evaluations of the republic settlements at the All-Union Review Competition, the successes and popularity of cooperative construction in the countryside, and a rise in the level of industrializing construction--all of this to a significant degree has been brought about by the introduction of the new designs of rural residential and public buildings.

In noting the positive shifts in designing and construction in the countryside, we must also mention the great role of experimental and model construction in the process of developing architectural ideas and in raising the professional skills of the designers and builders. In the republic 12 experimental model settlements are being built; another 3 are being designed.

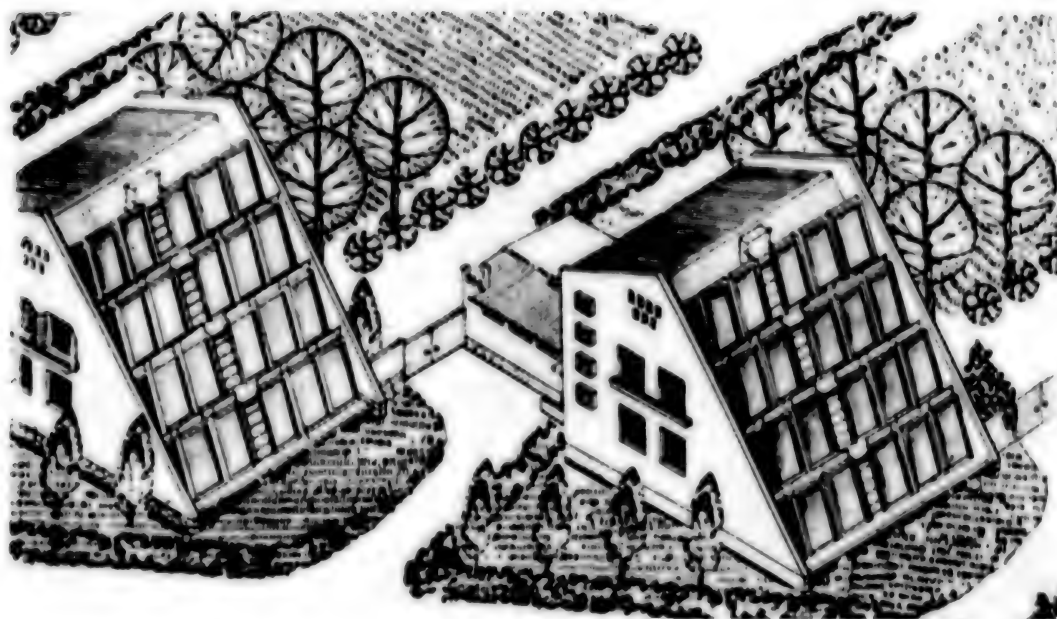
An improvement can also be noted in the program of the experiment and a rise in the quality of the designs. Original proposals are being tested out for using a landscaping system in the compositional structure of a settlement (the Uchkurgan Sovkhoz in Namanganskaya Oblast), and new principles for designing the public centers (the Kolkhos imeni Engels in Bukharskaya Oblast). New types of buildings are being developed for the countryside (a movie and concert hall, a museum of labor glory, a children's music school and Pioneer club, a solar-heated residential building, stores, tea rooms, a market, gymnasium and swimming pool) on the basis of designs employing prefabricated half-frames. All of this undoubtedly helps to raise the architectural level of the republic's villages.

However, as was shown by the results of the regular round of the All-Union Review Competition for the Best Development and Amenities in Rural Settlements (1978), regardless of the successes, the republic still has few villages which can serve as a model of modern rural architecture. A further improvement in rural architecture should be related to the development and introduction of new forms of the sociodomic and architectural layout organization of the villages which conform to the new nature of agricultural labor and the standard of living and at the same time do not violate the way of life which is natural for the rural locality or the link with land and nature.

Among the questions to be solved by the designs of regional planning, of important significance are the questions of the rational placement and specialization of the farms, determining the optimum size of the settlements, the inclusion of them in the modern group systems of populated areas, and the creation of systems of intersettlement cultural and domestic services. In defining the role of each of them in the settlement system, the regional planning plans provide objective prerequisites for working out individual layouts in the plans for the layout and development of the settlements.

It must be pointed out that along with the approaching completion of the basic amount of work on the plans for the layout and development of the settlements, the correcting and working out of the general plans of the settlements and their public centers will be continued in the future in line with the development of agricultural production, the development of new lands, the clarification of settlement questions in the comprehensive regional development plans, and the introduction of new series of plans for residential and cultural-service buildings. Characteristic of the pending work will be a profound elaboration of architectural questions and greater attention to the quality of designing.

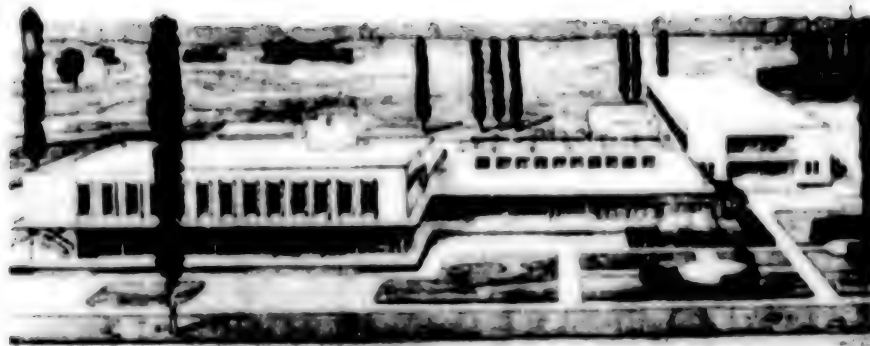
The directions for a further improvement in the layout and development of the villages cannot be determined without a thorough analysis of the experience of the development and reconstruction of the villages, cooperative construction and the development of new lands.



The settlement of the Kolkhoz imeni Sverdlov in Tashkentskaya Oblast.
Residential building with solar heating.

This experience shows that regardless of the rather wide selection of plans for residential and public buildings, the design institutes make rather limited use of them. This is particularly characteristic for sovkhoz construction in the virgin lands and for cooperative construction, and gives rise to a monotony and cheerlessness of development. Among the other shortcomings of new development one might mention the absence of a clear sense of layout, a lack of scale, and an absence of emotional accents and plastic diversity. Often in well planned structures the corresponding spatial expression is lacking. This leads to a disruption of the integrity of perceiving the development or even impedes ordinary orientation in the settlement.

For this reason, in working out the layout and development plans, particular attention must be given precisely to the formation of the architectural spaces and those actually felt architectural elements which should be seen by the inhabitant of the settlement in nature.



Standard plan of a rural trade center (Uzgiprosel'stroy)

The expressiveness of the village's image, as the examples of our best villages indicate, is also achieved by traditional means of architectural composition. It is essential to more profoundly work out the elements of the environment which directly surround man such as the space around the building, the residential group, and public landscaped areas.

Designers are familiar with the contradiction frequently encountered in work between the internal patterns of architectural composition and the stereotypic development principles. Such would be the disintegrating hard to organize space of streets built up with one- and two-apartment buildings with farmyard plots. Or a violation of the scale relationships between the height of the buildings and the spaces between them caused by the necessity of laying, in many instances on subsiding ground, a large number of utilities, drainage, water, sewage and gas supply.

Here obviously there must be a more active search for new solutions which would make it possible to condense the built-up area, without depriving the rural inhabitant of the specific feeling of the countryside or the necessary plot of land. In this regard of interest are the plans for the settlements of Sovkhoz No 4 of the Karsha Steppe (Gredazgiprutselinstroy [?Central Asian State Design Institute for Virgin Land Construction]) and the Kolkhoz imeni Engels in Bakharskaya Oblast (TsNIIIEPgrazhdanstel'stroy [?Central Scientific Research Institute for the Experimental Designing of Civil and Rural Construction]) in which layouts of residential groups have been proposed using the local traditional principles for condensing the development.

The need has arisen of rethinking the essence of the rural residence from the standpoint of urban development requirements, and to establish so-called feedback between the urban construction and standard designing. Up to now ordinarily an abstract standard design for a residence has been worked out, and this, being quite satisfactory for the dwelling of the corresponding type of family, at the same time remains absolutely indifferent to the specific urban development situations.

One of the possible ways for developing the rural residence, as an element of the architectural and spatial environment, is to break it up into functional layout units of varying domestic purpose and the forming from them of the housing cells (apartments) of the required composition and housing structures as determined by the urban development situation. In this instance housing architecture can more flexibly than is presently the case meet the requirements of the specific demographic and sociodomestic conditions, and naturally this will cause a diversity and individualization of its nature.

Along with the search for diverse layouts and the broad introduction of new types of housing in their development in recent years, more attention has begun to be paid to the designing and construction of rural public buildings. The buildings of the palaces of culture of the kolkhozes imeni Sverdlov in Tashkentakaya Oblast and imeni Frunze in Khorezmskaya Oblast, the club of the Aurora Sovkhoz in the Karsha Steppe, the public center of the Leninskiy Put' Kolkhhoz, the tea room on the Sovkhoz imeni Beginkulov in the Karsha Steppe, the administrative buildings of the Politotdel Kolkhhoz and the Sovkhoz imeni XXIV Part's"yezd in Tashkentskaya Oblast stand out in their high quality of architecture and the skillful use of monumental decorative means. However the individual buildings, in contributing to a definite degree to the individual architecture of their settlements, are still not in full "harmony," without being reinforced by the corresponding architectural surroundings and background.

From this stems the immediate practical task of increasing work in the area of forming the design-completed ensembles of the public centers. For carrying this out, in addition to a number of organizational measures, a certain change in designing is required in the allocating of capital investments and the construction stages. In this regard it is advisable to increase the amount of cooperative and individual construction and with the freed funds to speed up the construction of the cultural and service facilities.

The difficulty of the architectural design for the ensemble of a public center (with the present method of piecemeal standard designing of its constituent buildings) consists in the necessity of their layout coordination and reducing them to an overall, plastic and harmonious color solution. In the given instance the optimum way out would be the individual designing of the public centers, however with our scale of construction this is not always feasible. Consequently, the basic direction for forming the public centers over the next few years will remain their construction on the basis of standard and reused designs.

Obviously, such designs must be worked out in series in which all the projects, in possessing a stylistic unity, at the same time have the necessary variation in the layout and finishing of the facades and interiors. These principles have been presently realized in working out a number of plans for rural public buildings in the IIS-04 frame and panel designs.

In coming years industrial construction in the countryside will be greatly developed, and this is an area which up to now has been very little penetrated by the creativity of the architect. However ignoring the need for an aesthetic analysis of the production sphere of rural architecture inevitably leads to a disharmony, to layout failures and to emotional lapses in the perception of the architectural image of the settlement and the surrounding landscape. For this reason the creative participation of an architect in designing the production zone of a settlement should be an essential feature in working out the layout and development plans and on the questions of the prestige of the plan's author.

The growth of capital construction in the republic villages and the constant increase in the number of modern buildings, residential districts and entire settlements being put into operation and equipped with all sorts of utilities have greatly aggravated the problem of their operation and repair. The specific features of the village with its clearly expressed specialization and limited opportunities in other spheres of activity suggest the only feasible way of solving this problem, and this is to organize large interfarm subdivisions of an operating and repair service staffed with experienced personnel, the appropriate technical resources and production facilities. Such subdivisions can be part of the system of the large contracting ministries and departments, as are, for example, the repair and construction trusts of Glavsredazirsovkhozstroy [?Main Central Asian Administration for Irrigation and Sovkhoz Construction] on the lands being developed.

A comprehensive reconstruction of the villages and a rise in the level of rural architecture are an important problem in Uzbekistan. Here of crucial significance is a scientific sound approach to organizing the residential and production environment, more attention paid to the sociodomic and aesthetic aspects of rural architecture, the development and improvement of the industrial facilities for construction, and a generalization of the acquired experience.

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Improvements in Construction Management

Tashkent STROITEL'STVO I ARKHITEKTURA UZBEKISTANA in Russian No 1, 1980
pp 1-3

[Article by Engr S. I. Betman of the Samarkand State Architectural and Construction Institute, and Engr K. S. Krasnaya of the Moscow Construction

Engineering Institute: "Questions of Improving the Organizational Structure of Management in Rural Construction")

[Text Success in construction is largely determined by its organization and by the construction management structure. The organizational forms of construction management are determined by its specific features and primarily by the mobile nature of the implements of labor with the stationariness of the construction projects.

The construction process, depending upon the purpose of the projects to be built, is marked by a varying degree of complexity, by the production conditions and by the concentration or scattering of the projects. All of this necessitates a consideration of the territorial sectorial features in the organizational structure of construction management.

In accord with the basic directions for the development of the USSR national economy in 1976-1980, in construction there are plans to convert to two- and three-tiered management systems analogous to the existing number of construction management levels in the CEMA countries. The basic way for solving the posed problem, for bringing the management bodies closer to production, and for clearly and precisely delimiting the rights and obligations between the various management levels is to increase the size of the contracting organizations, and to create their new forms which meet the requirements of the present-day technical level of construction, the technology and organization of production, and the complicated system of co-operation and combination.

At present there still are many low-level rural construction organizations which carry out comparatively small amounts of work. They are not sufficiently provided with construction equipment, and they use production methods which do not meet modern technical requirements. The result is a construction time which exceeds the standard, a low level of organizing the work, and insufficient construction efficiency. The results of their operations are influenced not by any temporary or subjective factors, rather here there is a firmly established pattern. This has been affirmed by an analysis of the operations of 150 general contracting PMK [mobile mechanized column] and MSU [interkolkhoz construction administration] in Uzbekistan (see the Table).

As can be seen from the table, the basic indicators of the PMK and MSU which carry out a volume of construction-installation work by their own forces within the limits of from 2 and more million rubles differ from the PMK and MSU performing a volume of work up to 2 million rubles. As a rule, the inferior organizations of the last two groups operate at a loss. Unfortunately, in rural construction of the republic, the number of PMK and MSU carrying out from 0.5 to 2 million rubles of work a year is 67 percent. The overhead is significantly higher in the small rural construction subdivisions. Thus, for the PMK and MSU of the fourth group, overhead is 22-23 percent of the volume of work carried out by their own forces, while for the first group, not more than 13-15 percent. The number of administrative

Table

| No. of PMK and MSU groups | Load factor of construction organizations in terms of total volume (actual by own forces, million rubles) | Output per worker in construction- installation work and in ancillary production, rubles | | Level of reducing cost of work in % of estimated cost (+ increase, - decrease) | |
|---------------------------------------|--|---|-------|--|-------|
| | | a | b | a | b |
| | | | | | |
| 1976 | | | | | |
| 1 | Over 3 | 8450 | 9640 | -10.01 | -8.47 |
| 2 | From 2.0 to 3 | 6985 | 7880 | - 5.35 | -6.43 |
| 3 | From 1.0 to 2.0 | 6015 | 6385 | + 0.91 | +2.35 |
| 4 | From 0.5 to 1.0 | 5817 | 5990 | + 2.87 | +5.81 |
| 1977 | | | | | |
| 1 | Over 3 | 8874 | 10289 | -10.61 | -8.75 |
| 2 | From 2.0 to 3 | 7567 | 8345 | - 6.27 | -7.07 |
| 3 | From 1.0 to 2.0 | 6783 | 7040 | + 1.78 | +2.03 |
| 4 | From 0.5 to 1.0 | 6213 | 6397 | + 3.05 | +4.67 |

Key: a--Production construction; b--Housing and cultural-service construction.

and management personnel per million rubles of work carried out by their own forces in the PMK and MSU of the first and second groups is 15-17 persons, and for the third and fourth groups 20-22.

Such an indicator as the wage fund also favors the large organizations. In the subdivisions of the first group which build rural projects, wages are 8-10 percent less than even in the second, while the average wages of the workers are 4-5 percent higher, let alone in the third and fourth groups.

Thus, increasing the size of the inferior subdivisions of rural construction units can entail great reserves. And it is not only a question of saving the wage fund and a relative reduction in management personnel which, of course, is also important. In the large PMK and MSU, as a rule, there is a higher level of production organization, equipment is better employed, and there are fewer losses of working time in the brigades. This is caused primarily by the fact that they possess significantly greater opportunities for maneuvering the human and material resources. Of course, the volume of work carried out by each PMK cannot be uniform, and often it depends upon local conditions such as the location of the projects, the volume of capital investments in the given region, the capacity of the

construction facilities, and so forth. However, in a predominant majority of instances there is every opportunity for increasing the size of the inferior organizations.

However with its indisputed advantages this process is being carried out still slowly in rural construction. Obviously it is a question that a clear notion of the economic benefits of greater size is as yet not sufficient for success. At present so-called limit allocations are set for managerial expenses. But this procedure in no way encourages a higher load factor on the subdivisions. It is more advantageous for a trust to set up a new PMK than to allocate the increase of the program among the existing administrations. For this reason, in our view, instead of limit allocations it is essential to set some average standards of managerial expenses per million rubles of construction-installation work.

It is also essential to revise the standards by which the PMK and MSU are assigned to one or another group for the wages of engineers and technicians. Those which are in effect were worked out at a time when the rural construction workers were poorly supplied with equipment. At present for the same million rubles of construction-installation work significantly less labor expenditures are needed than 5-10 years ago.

We must also mention the purely "psychological" factor which impedes greater size. Among individual leaders there is the notion that the more subdivisions there are the "more solid" the trust appears. To the detriment of state interests they find pretexts to preserve even the dwarf PMK and MSU which operate at a loss. Such a situation is observed annually when the quotas are given to curtail the managerial personnel.

One of the ways for improving leadership of rural construction is to increase the size of the inferior construction organizations and this, without preliminary material and financial expenditures, even now can bring a tangible benefit.

The task of an all-round intensification of rural construction and a rise in its efficiency requires not a mere reduction in the number of management tiers, but an improvement in the organization of activities in all levels of rural construction. Both can be achieved by creating new management forms, that is, by organizing large construction associations which would be capable of providing a high level of industrialization, the broad use of new progressive designs and materials, and the effective use of powerful, highly productive construction machines. The formation of construction-installation associations, moreover, would eliminate one middle-level unit in the management system, that is, the trusts.

Unfortunately there is no unanimous opinion on the question of improving the organizational structure of construction management in the area of setting up construction and installation associations. Some authors argue in favor of setting up territorial-sectorial associations which should carry out all industrial, housing-civil and agricultural construction in

their zone [1, 2]. Another group of authors has proposed setting up construction associations of the sectorial type, but not limiting them to just one territorial region or oblast [3, 4]. Completely opposite opinions have been voiced on the organizational structure and the legal and economic-financial functions of the associations. A number of economists [5] have, unfortunately, not seen the basic "weak link" in the organizational activities of the rural construction workers. This, in our view, is the lack of direct contacts between the clients and subcontractors, the designers and general contractors, as well as the sequential execution of design and construction work. This leads to an increase in construction times, particularly in erecting large agricultural complexes.

The presently existing rural production associations, in our view, only partially solved the question of improving the efficiency of construction, as they are not comprehensive organizations capable of coordinating the entire diverse process of erecting the buildings and installations under the specific conditions of rural construction. This is explained not only by the existing practices of rural construction, that is, by the necessity of broadening the economic operational independence of the PMK and MSU under the conditions of dispersed construction, but by the fact that under present-day conditions the management of construction activities in the countryside cannot be efficient in isolation from the sectors and production servicing it, and without considering the direct ties and feedback which determine the main directions of scientific and technical progress in all the elements of this system.

Under these conditions, a rise in the efficiency of managing rural construction is possible only on the basis of economic integration among functionally interrelated enterprises, types of production and systems which comprise the construction complex. Within such an intersectorial complex, the following should be considered: Construction; the system of designing and scientific research; the production of building materials and structural elements; the activities of the transport systems and mechanization administrations both for serving construction and for the building materials and structural element enterprises; other ancillary systems.

Thus, it is a question of setting up in each oblast of Uzbekistan comprehensive design-construction organizations. In our view, the creation of such an organizational form for managing rural construction will make it possible to improve the relationships between all its participants, to shorten the time of the various coordination procedures, and to reduce the duration and cost of construction by the combining and parallel execution of design and construction work.

Here an example would be the Uzolkhozstroy [Uzbek Kolkhoz Construction] Association, with a correlation analysis made on the dependence of the labor productivity level upon internal specialization using the data from the annual reports of its 106 interkolkhoz PMK and MSU. For this was made of an equation for a curve of the second order: $y = a + bx + cx^2$. The finding of the a, b, and c parameters was done on a Minsk-22 computer using

a system of normal equations. Using the method of the sequential exclusion of unknowns, it was determined that $a = 4820$, $b = -19.5$, and $c = 0.48$. Having substituted the values of the parameters in the equation, we obtain the formula:

$$y = 4820 - 19.5x^2 + 0.48x^2,$$

where y --the level of labor productivity;

x --the level of internal specialization (the proportional amount of the volume of construction work carried out by specialized organizations which are part of the general construction trust).

In making the calculation for the amount of y using the given formula, depending upon the values of x , we have found that the rise in labor productivity with a level of internal specialization up to 40 percent is insignificant, and only subsequently rises rapidly. With an internal specialization equal to 50 percent, the growth of labor productivity is already 9 percent, at 60 percent it is 16 percent, and so forth. The level of internal specialization in the rural trusts does not exceed 30-35 percent at present, and this shows the existing reserves for a further rise in labor productivity with the setting up of the designated associations.

The internal specialization of the associations will make it possible not to scatter state funds on the building of production facilities for several construction organizations operating in the countryside in one oblast, to consolidate these facilities, and consequently, to significantly improve the supply of construction and raise the level of industrialization. In our opinion, in addition to the general construction PMK and MSU, the design-construction associations should have under them a design organization, rail and motor pools with the motor columns in the PMK and MSU, a mechanization administration which carries out only repairs and leases construction machines and equipment to the PMK and MSU, internal subcontracting organizations, an UPTK [Administration for Production and Technological Supply], groups for the preparation and organization of construction and for introducing advanced work methods, a norm-research station, a training center for improving the skills of workers, engineers and technicians, a computer center, repair shops (plants) and subordinate to the mechanization administration, and a housing and utility system. The PMK and MSU comprising a rural design-construction association should be given the rights of independent state enterprises. Consequently, the association will not have the rights of an enterprise, and under the conditions of the great independence of the PMK and MSU, this is completely valid.

The basic task of the design-construction association in construction in the countryside will come down to ensuring precise interaction of all the participants of the construction process for the purposes of the prompt completion of the projects and agricultural complexes, to creating conditions for introducing the achievements of scientific and technical progress into the sphere of designing, production and management, to raising the level of mechanization and automation in the construction processes, to

developing the industrial base and to putting out progressive materials and structural elements under the conditions of each region.

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Continuous Construction Method

Moscow ZHILISHCHNOYE STROITEL'STVO in Russian No 2, 1980 pp 2-3

[Article by Kh. M. Nasyrov, deputy chairman of the Uzbek Gosstroy: "The Orel 'Continuous Method' in the Cities of Uzbekistan"]

[Text] Housing and civil construction is being carried out widely in Uzbekistan. Each year housing is completed with a total area of over 5 million m^2 , as well as general education schools with more than 125,000 seats, pre-school children's institutions with over 40,000 places, as well as many other cultural and service projects.

Cooperative housing construction is growing both in the city and particularly in the countryside. Thus, in 1979, there were plans to complete cooperative residences with a total area of 325,000 m^2 , including 170,000 m^2 in the countryside.

Great work is being done to introduce the brigade contract into construction. In the first half of 1979, the volume of work carried out by the brigades working under a contract was 375 million rubles, or 35.3 percent of the total volume of construction and installation work. Certainly, the constantly growing volumes of housing and civil construction in the republic require the further development of the industrial base of construction and the introduction of new forms for organizing construction.

Hence the great significance for the republic of the progressive method of organizing and carrying out comprehensive assembly-line construction on the basis of continuous planning using the experience of construction workers from Orel.

For introducing the Orel method into construction practices, a list of 15 Uzbek cities was approved, including Tashkent, Samarkand, Fergana, Andizhan, Nukus and others, where the functions of the unified client for the designated construction would be given to the executive committees of the city or oblast soviets. In addition, the functions of the client were also entrusted to a number of ministries and departments carrying out construction by the contracting organizations under them.

On the basis of this the Council of Ministers of the Karakalpak ASSR, and the oblast and city executive committees of the soviets carried out work to prepare for and convert to the new method of planning and construction.

On the spot, the unified clients, the general designers (UzNIIPgrado-stroitel'stva [?Uzbek Scientific Research Institute for the Planning of Urban Construction] of the Uzbek Gosstroy in the republic cities, and Tashgiprogor [Tashkent State Institute for the Designing of Cities] for Tashkent), and the general contracting construction organizations of the Uzbek Ministry of Construction and Glavtashkentstroy [?Main Tashkent Construction Administration] were established. In the oblast centers and cities of the republic, coordinating councils were set up for introducing the new method.

The republic Gosplan and the local soviets have carried out work to concentrate capital investments on housing construction and the construction of children's preschool institutions and to turn them over under a centralized procedure to the unified clients. For 1979, 69 million rubles within the established procedure were turned over to the local soviets, and with this money housing was built with a total area of 316,000 m², and 4.2 million rubles for the building of children's nurseries and creches with 2,500 places. The funds were obtained from 390 preschool enterprises and organizations of the cities.

In Tashkent, 83 percent of the funds allocated for housing and civil construction have been concentrated at the unified client, the GUKS [Main Capital Construction Administration] of the city executive committee; 254 shareholders are involved in this construction with 48 million rubles in capital investments.

In Angren, 4.7 million rubles from 10 shareholders have been concentrated at the unified client, in Fergana 5 million rubles from 27 shareholders, in Andizhan 0.95 million rubles from 11 shareholders, and in Samarkand 2.52 million rubles from 17 shareholders. Thus, 67 percent of all the funds allocated for housing and cultural-domestic construction have been concentrated in these cities.

In 1979, in addition to the limit set by the USSR Gosplan for design and research work for introducing the Orel continuous method, the republic allocated an additional 2.4 million rubles to the local soviets. This will make it possible to significantly provide the designs and estimates for the development of the cities in 1980-1981.

The Tashkent Territorial Scientific Research Laboratory for the Organization, Management and Economics of Construction and the Central Asian Affiliate of the Introduction Bureau of the TsNIIOMTP [Central Scientific Research and Experimental Design Institute for the Organization, Mechanization and Technical Aid for Construction] have provided great help in working out the necessary specifications for introducing continuous 2-year planning. They have worked out and the Gosstroy has approved and sent out as a guide for all the local soviets and construction organizations "Recommendations on Introducing Comprehensive Assembly-Line Construction on the Basis of Continuous Planning in the Uzbek Cities" and these consider the local particular features of construction.

The Central Asian Affiliate of the Introduction Bureau of the TsNIIOMTP on a contractual basis has worked out the technical specifications for 1979-1980 for Angren and Andizhan, and is preparing the specifications for Fergana.

The Tashkent City Executive Committee has approved a placement plan and the construction structure of the projects for 1981-1985. This will be the basis for working out the 2-year continuous plans for comprehensive assembly-line construction of housing, cultural-service and utility projects.

Glavtashkentstroy has worked out and is introducing assembly-line schedules into the construction practices for the residential microrayons of the city, and this has made it possible to somewhat improve the steadiness of completing housing over the quarters of the year, to shorten the times for putting the buildings into operation, and to improve construction quality.

In the first half of 1979, Glavtashkentstroy fulfilled the annual plan for completing housing by 46.1 percent in comparison with 39.6 percent for the corresponding period of 1978. The construction time of large panel housing was shortened from 242 days in 1978 to 207 days in the first half of 1979, and for brick housing from 361 to 321 days. The quality estimate of construction has been improved. For example, for Glavtashkentstroy, of the 265 housing and civil projects completed in 1977, 118, or 44.6 percent, received an evaluation of good and excellent, and in 1978, of the 281 projects, 139, or 49.6 percent. The steadiness of completing the housing over the quarters of the years has improved, and the quality of construction has risen in the other cities as well. Thus, the Fergana DSK [housing construction combine], having organized the construction of large-panel housing in four assembly lines using independent brigades, in 1978 put into use (in percent for the quarters): 17.5 percent in the first quarter, 28 in the second, 27 in the third, and 28.1 in the fourth; in 1979, the

figures were 38.2 in the first and 30 in the second. In 1978, of the 61 projects completed by the DSK, 59 received an evaluation of "good" and 2 "excellent," and during the 6 months of 1979, of the 32 completed projects, 29 were "good" and 3 "excellent."

For Samarkand and Angren, all the housing and civil projects completed in 1978 and in the first half of 1979 were given an evaluation of "good."

According to the results of a republic contest held in 1978 by the Uzbek Gosstroy for the best design of housing and civil construction using the assembly-line method and its realization, the first prize was awarded to the DSK-1 of Glavtashkentstroy, and the second to the Zhilstroy [Housing Construction] Trust under the same Glavk [main administration].

In 1979, the Uzkolkhozstroy [Uzbek Kolkhoz Construction] Association which is the unified general client, designer and contractor for construction on the kolkhozes began to introduce the continuous Orel method in the countryside. During the current year this association will complete 273,000 m² of housing on the kolkhozes, as well as general education schools with 57,000 seats, and preschool institutions for 22,000 places.

The Uzbek Gosstroy is providing systematic control over the course of working out the technical specifications for the 2-year period for the cities and unified clients, and is providing the necessary help in solving the arising questions so as to complete the preparations for introducing the new progressive method in the development of the republic's cities in 1980.

For the purposes of strengthening control over the course of solving the questions related to the introduction of continuous planning and the organization of comprehensive assembly-line construction of housing and cultural, service and utility projects in the republic's cities, a plan has been introduced for setting up an Interdepartmental Republic Coordinating Council.

At the same time, in introducing the continuous Orel method, there still are definite shortcomings and difficulties.

Thus, not all the local bodies, the unified clients and unified contractors have taken an active part in the work of introducing this method of planning and construction.

The local organizations still do not sufficiently follow the current instructions of the Construction Standard 508-78, and because of this comprehensive consolidated network schedules are not worked out. Summary plans for the organization of construction and the carrying out of the work have not been elaborated for the microrayons to be developed. We must also note the delayed and incomplete supply of the projects with building materials and the insufficient steadiness of completing the projects due to the absence of a necessary backlog for the first quarter of the year and the low level of construction quality.

The difficulty of construction is also determined by the historical development of the cities, by the high population density, and also by the high seismicity and the lack of free land around the Uzbek cities.

We must particularly emphasize the role of the Decree approved by the CPSU Central Committee and USSR Council of Ministers "On Improving Planning and Strengthening the Effect of the Economic Mechanism on Raising Production Efficiency and Work Quality." This decree provides an opportunity to bring about an improvement in the state of affairs with capital investment planning for housing and cultural-service construction, and to introduce a progressive method into the development of the republic's cities.

In our opinion, in order to accelerate the introduction of the continuous Orel method in the republic, a number of questions must be solved. Thus, in approving the annual plans for the construction of housing and socio-cultural and service projects, control figures must also be set for the following year; the Union ministries and departments must submit requests for proportional participation, considering the control figures for the subsequent year of the 2-year period being planned.

In addition to this, in planning the design and research work for construction in future years, it is essential to provide for the elaboration of the blueprints of the utility mains, the internal rayon roads and the major utilities 2-3 years before the start of construction, considering their completion a year prior to the start of developing the microrayons.

Materials and equipment must be supplied for the 2-year period in order to meet the demand according to the plans, the production methods and construction schedules.

Indicators must be worked out for a normed production backlog for the construction organizations with 2-year planning of housing and civil construction.

A regulation must be drawn up on material incentives for the personnel of the unified client for fulfilling the indicators of the 2-year plans.

The decree of the CPSU Central Committee and USSR Council of Ministers on improving the economic mechanism aims the construction workers and designers at a more precise and reasoned formation of the five-year and annual plans, on the basis of economic and engineering calculations. Being a component part of the five-year plans, the Orel 2-year plan is aimed at the unconditional fulfillment of the tasks of the Tenth Five-Year Plan. For this reason, the construction workers and designers in the republic are making every effort to successfully carry out the tasks confronting them in the area of introducing the method of the Orel construction workers.

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CONSTRUCTION

INDUSTRIAL CONSTRUCTION, ARCHITECTURE IN UKRAINE REVIEWED

Flow Line Construction

Moscow STROITEL'NAYA GAZETA in Russian 14 Mar 80 p 2

/Interview with G. Malyshevskiy, manager of the Order of Lenin Trust No 1 of the Ukrainian SSR Ministry of Industrial Construction, by STROITEL'NAYA GAZETA special correspondent Ye. Dmitrenko: "The Policy Is Unification"7

/Text During the fourth year of the five-year plan the Order of Lenin Trust No 1 of the Ukrainian SSR Ministry of Industrial Construction--the winner of the 1979 All-Union Competition--fulfilled the plan according to the general contract by 101.9 percent and on its own by 102.4 percent. In all 42 capacities were turned over to clients: 6 in the first quarter, 13 in the second, 6 in the third and 17 in the fourth. More than a third of the projects were accepted by state commissions ahead of schedule.

If we take into account that for the country as a whole four out of five capacities are put into operation during the fourth quarter, and more precisely, in December, the experience of the Kievans merits particular attention. Especially as this collective dealt just as successfully with the assignments on the introduction of capacities during the second and third years of the five-year plan. What helps it to work smoothly? STROITEL'NAYA GAZETA special correspondent Ye. Dmitrenko talks about this with G. Malyshevskiy, manager of the trust.

/Answer Three years ago, while competing in honor of the 60th anniversary of Great October, our trust jointly with client enterprises, specialized organizations of the Ukrainian SSR Ministry of Installation and Special Construction Work and the territorial administration of the Ukrainian SSR Main Supply Administration drafted an organizational and technological plan of flow line construction, which provided for the uniform delivery of

projects by quarters. At that time the Central Committee of the Communist Party of the Ukraine and the central committee of our trade union approved this initiative.

There are many clients in Kiev, a city with developed industry and an extensive network of scientific research organizations, and they all have work for us. Of course, in this situation no planning organ is capable of coordinating the program of introduction with allowance made for the technological reserve being formed at the trust. As a rule, the delivery of the majority of projects is planned for the fourth quarter. Everyone knows what the predilection of construction workers for these calendar deadlines leads to: at first the forces are spread out, but at the end of the year crash work is organized almost everywhere.

The flow line construction conveyor provides for the concentration of forces first of all at the projects which it is possible to put into operation more rapidly. As the work at them is completed, the labor tension shifts to other projects, whose placement into operation can also be brought nearer. Practically every construction and installation administration constantly has sites at which the construction and installation work is being carried out intensively, and has construction projects with an open work front for specialized organizations and decorators.

The division of engineering preparation of the trust draws up plans of flow line construction by the beginning of the year. For each project statements of the remaining physical amounts of work and lists of the necessary components, materials and equipment are compiled and network schedules and plans of the organization of construction are prepared. On the basis of these documents the amounts of work are distributed among the performers, including the subcontractors. They also serve as the basis for the defense of material resources by nomenclature and delivery dates in the Glavpromstroysnab of the Ukrainian SSR Ministry of Industrial Construction and the Ukrainian SSR State Committee for Material and Technical Supply.

[Question] But the approach of the placement of capacities into operation depends not only on the construction workers, the efforts of all related enterprises must be united.

[Answer] We are actively using such a form of competition as the Workers' Relay Race. Operations headquarters for the coordination of the activity of the partners and the monitoring of the fulfillment of obligations are working at all the projects. We consider them the working organs of the Workers' Relay Race. The representatives of the administration, the party and trade union organizations of the client, contractor and subcontractors are included in them, and the decisions made by the headquarters are obligatory for all the performers.

Last year the ventilation equipment was late for the construction of the punch-press shop of the Kiev Shoe Factory imeni 10-letiya komsomola Ukrainy. The headquarters of the construction project, which was headed by deputy

manager of the trust A. Moshkevskiy, raised the alarm and succeeded in getting the deliveries expedited. At the reinforced concrete items plant the preparation of concrete mix was abandoned--representatives of the headquarters went to the enterprise and helped it to obtain the gravel necessary for this.

[Question] In 1979 the trust adopted the Vinnitsa system of the planning of construction and the supply of complete sets of equipment for the brigade. What did the combination of this method with the flow line construction conveyor yield?

[Answer] First of all the material and technical supply of the projects was improved. The components, items and materials do not accumulate at the intermediate warehouses, but are delivered to the work area of the brigades directly from the bases of the Administration for the Supply of Complete Sets of Production Equipment and enterprises.

The plan of flow line construction for this year calls for the placement into operation of eight projects during the first quarter, although the planned date of their placement into operation is the second half of the year. Competing in honor of the 110th anniversary of the birth of V. I. Lenin, the collective of the trust took upon itself to fulfill by 23 December the plan of the final year and the five-year as a whole both on the volume of construction and installation work and on the placement of capacities and projects into operation.

Three years of experience have shown the viability of the flow line construction conveyor. But difficulties, which hinder its operation, have also been clearly revealed. First, there are shortcomings in planning. It is clear to everyone: the trust is striving to perform amounts of construction and installation work, which are equal by quarters, to consume the same amount of materials resources and to achieve a uniform output of finished products. But the republic Ministry of Industrial Construction is not taking this into account. During the first half of last year we wanted to perform 52.5 percent of the annual amount of work, but we were allocated a wage fund in the amount of 47.6 percent of the annual need. The construction organizations had to upset the rhythm to some extent and to concentrate more forces on materials-intensive jobs in order to obtain the lacking 350,000 rubles for wages.

The conveyor does not belittle, but makes even more necessary the active introduction of scientific and technical developments. Roofs made from reinforced concrete arches, diaphragm girders with a span of up to 36 m with a metal bottom chord, roofing sheets with foam concrete and polymer insulation and other advanced components were tested in the Ukraine for the first time at the construction projects of the trust. We are continuing this policy and do not accept from institutes for implementation plans which do not provide for the use of industrial components.

But, of course, everything does not always turn out. When the trust had its own production base, we did not have any difficulties and produced what we needed by ourselves. Today we are completely dependent on the Kiyevzhelezbeton Association, which mainly produces items of the standard nomenclature. In order to obtain from them, let us say, the same arch covers, at times even the Workers' Relay Race is not enough, pressure on the part of the combine or the ministry is required.

The decree of the CPSU Central Committee and the USSR Council of Ministers on the improvement of the economic mechanism, in which it is established that the construction production association should become the main cost accounting link of construction work, suggests a way out of this situation. Now there is a statute on it, which was approved by USSR Gosstroy. Our trust is completely ready for the changeover to the new structure. I am convinced that within the cost accounting association the flow line construction conveyor being used by us would become an even more effective means of expediting the placement of production capacities and projects into operation.

Comprehensive Engineering Preparation

Moscow STROITEL'NAYA GAZETA in Russian 28 Mar 80 p 2

[Article by Ukrainian SSR Minister of Industrial Construction V. Areshkovich: "In Search of a System"]

[Text] I remember the arrival of N. Zlobin, initiator of the brigade contract, at Chernigov. It was during the second year of his use of the new form of management. The construction workers of the Ukraine, who were present at the meeting, showed great interest in the innovation. The results achieved by the workers of Zelenograd were impressive. Everyone was convinced that brigade cost accounting is a mighty tool which helps to build quickly, economically and with high quality.

Many people at that time decided that the contract would spare them of all the misfortunes with which the construction workers were faced. It seemed that they had found a panacea, and now one has only to conclude more contractual agreements for the matter to proceed by itself. But in practice it was not so. The contract merely established new production and legal relations between the brigade and the administration, precisely defined their functions and interested the brigade in the achievement of better end results.

Some managers of construction organizations required time, and a lot of it, to understand this. At first a large number of brigades, which had been hastily converted to the contract, were not able to meet the contractual obligations. And most often not through their own fault, but due to the poor preparation of projects for construction, the failure to supply machinery, untimely manning and for other reasons, which only the administration is capable of eliminating.

There was also another extreme: the limitation of the number of contract brigades. In the construction administration one or two collectives were converted to cost accounting, better conditions were created for them, by means of which it was possible to achieve good results. It would seem that the viability of local cost accounting had been confirmed by deed. But the "selective" contract did not provide appreciable success.

It became clear that the mass introduction of the brigade contract was possible only on the condition of the improvement of the entire structure of the management of construction. A form of the organization of production, in case of which the brigade would be at the center of management, had to be found. The radical reorganization of management, the improvement of the engineering preparation and the achievement on this basis of the effective planning of construction and installation work and the supply of complete sets of production equipment were required.

The "Podryad" long-term goal program, which was approved by the USSR Ministry of Industrial Construction, is helping us to solve this problem. In our republic ministry the Ukrorgtekhtsroy Planning and Technological Institute, the Ukrainian Scientific Research Center, construction and installation organizations and production subdivisions are taking part in its implementation. The personal responsibility for the introduction of the brigade contract has been placed on the first directors.

The experience of the Vinnitsapromstroy Combine, at which the system of planning and the supply of complete sets of production equipment in terms of the consolidated brigade was used for the first time, is especially valuable. This was achieved by the main thing--the bringing of all the services of construction organizations closer to the brigade. The local production collective creates the finished construction product, the fulfillment of the plans of construction and the placement of projects into operation depends on its successful work--hence management should be oriented toward it. The limits of independence of the brigade were also extended, now it receives a state plan and is completely responsible for its fulfillment.

The guarantee of the supply of complete sets of technological equipment increased. The Administration for the Supply of Complete Sets of Production Equipment became the only organ which ensured the complete supply of brigades with material and technical resources. Components, items and materials ceased to be held up at intermediate warehouses, and are delivered directly from the base of the Administration for the Supply of Complete Sets of Production Equipment to the work areas of the brigades according to plans and schedules, which are coordinated with the technology of the work. As a result the line engineering and technical personnel have been freed from supply worries. Their responsibility for the assigned matter increased: previously it was possible to shift any miscalculation on to poor material and technical supply, now this cover has become unreliable.

The system put all the brigades under equal conditions, each one obtained an opportunity to show its worth. It is not by chance that since the second year of work according to the new system at Vinnitsapromstroy the entire amount of construction and installation work has been performed by the method of brigade cost accounting. Having put its own house into order, the combine acquainted the related enterprises--the outside contractors--with cost accounting.

The advanced know-how is now being introduced at other combines and trusts of the Ukrainian SSR Ministry of Industrial Construction. However, practice has shown that not everywhere, including in Vinnitsa, is everything turning out as it should. A chronic disease--the imbalance of the plans of construction and installation work with material and technical supply--is making itself felt.

The material resources are allocated to the ministry, as is known, according to sectorial standards per million rubles of construction and installation work. It is no secret to anyone that these standards are far from always substantiated, in a number of instances the demand for resources is determined by using below average coefficients. The situation is being aggravated by the fact that we ourselves, owing to many subjective causes (the main one is the low level of the engineering preparation of production), cannot correctly distribute even what we do have.

Under these conditions and with the harmonious Vinnitsa system of planning and the supply of complete sets of equipment interruptions are occurring in the supply of brigades. In the end this affects the fulfillment of the plans of construction and the placement of projects into operation. The possibility of the mass changeover of collectives to cost accounting is decreasing. For example, at the Volyn'promstroy Combine, which uses the system, only 65 percent of the brigades have been converted to the contract.

That is why the collegium of the Ukrainian SSR Ministry of Industrial Construction has outlined major measures for the purpose of increasing the level of all engineering work in construction. It was decided, in particular, on the basis of the comprehensive engineering preparation of production (KIPP) to ensure the elaboration of standard technological documents, which should be, first, reliable for substantiating the need for material and technical resources and, second, mandatory for the planning of construction and installation work and the supply of complete sets of production equipment.

The experience of Glavvostoksibstroy /Main Administration for Construction in Regions of Eastern Siberia/ (for more detail see STROITEL'NAYA GAZETA, 14 March of this year), which uses in the system of standard technological documents so-called technological sets of operations (TKR's), was useful to us in the search for ways to do this. But we want to go farther. Whereas at Glavvostoksibstroy the technological set of operations, which is a component of the stage of construction, is regarded as an element of the optimum planning, financing and calculation of material and technical resources,

here the estimates of the need for machinery and equipment, the planned estimated cost, the labor expenditures, the expenditures on wages, the organization of operations and the use of new equipment are also included in it. The consolidated brigade, in accepting a stage or set of the operations for the contract, is immediately provided with everything necessary for the drawing up of a cost accounting contract and the performance of the operations on a high technical level. The obligatory technology, the general construction plan and the charts of the labor processes for all types of operations are included in the documents for the technological set of operations.

The conversion to this level of preparation requires, of course, skilled engineering labor. Owing to their dissociation, this task is clearly not within the capability of the current planning estimate bureaus, trusts and construction and installation administrations, the groups of industrial workers engaged directly in production and the combined divisions of Ukrgortekhtroy. The implementation of the comprehensive engineering preparation of production in the amount which is being planned should be entrusted to centralized engineering services. The problem of setting up as an experiment subdivisions of the comprehensive engineering preparation of production at the Vinnitspromstroy Combine and at the Khersonpromstroy, Rovnopolymstroy and Volyn'promstroy combines, which operate according to the same method, was solved in the USSR State Committee for Labor and Social Problems.

The ministry approved a decree, in which the tasks, composition and the procedure of drafting and using standard technological documents were specified. Provision is made to carry out the compilation of technological sets of operations as the plans are received, regardless of the start of construction of the project. A reserve of sets of operations should be created for delivery to their performers in a strict sequence of construction. The standard technological documents are obligatory for the workers of all levels of management, they will make it possible to convert to planning and reporting according to the standard net production.

The creation of models of the performance of construction and installation work and standard technological sets for several series of apartment houses, kindergartens, schools and administrative and general facilities in designs of series II-04 has already begun at the Vinnitspromstroy Combine. Along with technologist-specialists the chief engineers, the chiefs of projects and the performers of operations of the subdivisions of the combine are engaged in this.

Enormous efforts of the engineering and technical personnel of all ranks are necessary in order to implement this program. The responsibility of the chief engineers of construction organizations is especially increasing. We most rigorously demand that they focus all their attention on the management of the engineering preparation of production, the introduction of new equipment, the improvement of the organization and technology of construction work and the dissemination of advanced know-how, on which in the first place the increase of labor productivity depends. We intend to wage

a resolute struggle against the unsuitable practice, when the chief engineers are diverted from their main duties, being appointed the responsible executives of individual projects and complexes.

We are faced with a clear objective: on the basis of the comprehensive engineering preparation of production to create for the contract brigades conditions which guarantee great productivity and the successful achievement of the end results--the placement of projects into operation on the set dates. The additional expenditures of engineering labor on this will unquestionably pay for themselves and will serve as a new stimulus of the further development in construction of the advanced form of cost accounting.

Architecture in Housing

Kiev STROITEL'STVO I ARKHITEKTURA in Russian No 2, 1980 p 32

[Article: "In the Union of Architects of the Ukraine"]

[Text] The Eighth Plenum of the Board of the Union of Architects of the Ukraine, which was devoted to the role of architects in the formation of the residential environment of the cities of the Ukraine, was held in Kiev in December 1979. Secretary of the Board of the USSR Union of Architects V. N. Belousov, leading architects of Kiev and representatives of party and soviet organs of the republic took part in the work of the plenum.

Secretary of the Board of the USSR Union of Architects and Chairman of the Board of the Union of Architects of the Ukraine I. N. Sedak delivered a report.

Ukrainian architects, it was noted in the report, are making a worth contribution to the construction of new cities, the solution of the housing problem and the building of the giants of the 10th Five-Year Plan.

Considerable gains have been made in recent years in housing construction of the Ukrainian SSR. More than 360,000 apartments are built annually in the cities and villages of the republic. By the beginning of 1978 the available urban housing had increased to 402 million m² in total floor space, which is more than fourfold more than the available housing in the cities of the Ukraine in prewar 1940. This made it possible by the beginning of the current five-year plan to accomplish in full the changeover to single-family habitation of the apartments in the new available housing (more than 98 percent of all the apartments being put into operation).

Along with the considerable increase of the amount of housing, in the Ukrainian SSR its quality and the comfort of living of the population are continuously increasing.

The conversion to the mass construction of apartment houses according to new series of standard plans with considerably improved spatial design and architectural solutions of apartment houses and apartments and improved

operating and sanitary qualities, which make it possible to take more completely into account the demographic and local natural and climatic requirements, is now being completed.

The bulk of the construction of apartment houses in the Ukrainian SSR is being carried out according to standard plans, the level of standardization on the average for the republic is 96.4 percent. Standard plans of apartment houses of more than 60 series with different numbers of stories are now being used, of them more than 35 are new series.

The forthcoming drafting of standard plans of apartment houses for future construction after 1980 is one of the most important measures on the further improvement of the quality of housing construction in the Ukrainian SSR.

The future standard plans should ensure the further improvement of the public health and everyday conditions of living of the population and its cultural and personal service, the increase of the quality of the architecture of buildings with allowance made for the diversity of national, climatic, everyday and other local conditions of construction.

These plans should also promote the radical improvement of the layout and development of cities and settlements, the more rational use of urban territories and the increase of the urban development quality of residential rayons.

In recent times the bulk of housing construction in the republic has been carried out, as a rule, in vacant areas. The residential rayons of Veshenki, Obolon', Khortitskiy, Pobeda, Yubileynyy, Yuzhnyy, Severnyy, Zarech'ye and many others have appeared in the cities of the republic. Creative collectives of architects and an army of construction workers are behind each of these names.

Whereas during the past decade an approximately equal quantitative level of housing construction has been achieved in all the cities and settlements, its qualitative level, the improvement of the territory, the diversity of the compositional techniques, the utilization of the features of the landscape and the architectural expressiveness of the buildings are far from identical, and a tendency for the qualitative level to lag considerably behind the growth rate of housing construction is being noticed. What has been said does not at all signify that the overall esthetic level of building has worsened as compared with the preceding period. On the contrary, it has improved owing to the increase of the occupational skill of architects, the appearance of new series of standard plans, which are better esthetically than previous ones, the comprehensiveness and completeness of the individual microrayons.

The achievements of individual oblasts and cities in this respect are ambiguous.

The construction in the republic of model and experimental microrayons in the following cities: Obolon'-2 in Kiev, No 5 along Prospekt Mira in Khmel'nitskiy, along Ulitsa Yakira in Voroshilovgrad, No 12-a in Simferopol', the microrayon of the First Tavricheskiy Rayon in Kherson, the block along Ulitsa Borodiya-Shevchenko in Zhitomir and others, was one of the measures in the matter of increasing the quality of housing development. In some of them the construction work is almost entirely finished--they are Vishenki in Vinnitsa, Vostochnyy and Kotsyubinskogo in Voroshilovgrad, No 76 in Severodonetsk, No 8 along Prospekt Gagarina in Khar'kov and Dneprovskiy in Cherkassy. In other the readiness is 70-80 percent.

The completeness of development is one of the main conditions for the creation of a full-fledged residential environment. It is necessary to point out as a positive example the following major microrayons and residential rayons--Pobeda in Dnepropetrovsk, Vinogradar' in Kiev, Pripyat' of the Chernobyl'skaya AES, along Ulitsa Nauchnaya in L'vov. However, the building of cultural and personal service institutions in Krivoy Rog, in 18 microrayons of Donetsk, in 13 microrayons in Kirovograd, at Elektron in Nikolayev, along Ulitsa Kovpaka in Sumy and in other cities is lagging considerably.

The quality of construction work, which, unfortunately, is still not satisfactory everywhere, is one of the important factors for the creation of a comfortable residential environment.

The residential environment is not only the apartment house, the courtyard and the landscape, it is also the store, the school and the kindergarten. This obvious fact is often overlooked by clients and especially contracting organizations, which at times forget about the need for the completeness of development. Only the comprehensive construction of apartment houses and public buildings ensures the full value of housing and living conditions and the necessary esthetic level.

At the plenum it was emphasized that today it is no longer possible to calculate the supply of housing only in square meters of constructed apartment houses. It should be at the same time the provision of workers with all kinds of cultural and personal services, transportation, public services and amenities and landscaping. None of these elements can be considered secondary, just as the artistic expressiveness of the housing system cannot be considered secondary.

Secretary of the Board of the USSR Union of Architects and Director of the Central Scientific Research Design Institute of Town Planning (Moscow) V. N. Belousov, Member of the Presidium of the Union of Architects of the Ukraine and First Deputy Chairman of the Ukrainian SSR State Committee for Construction Affairs N. L. Zharikov, Chairman of the Board of the Khar'kov Organization of the Union of Architects of the Ukraine D. P. Kal'noy, Chairman of the Board of the Donetsk Organization of the Union of Architects of the Ukraine A. L. Lukin, Chairman of the Section of the Synthesis of Architecture and Fine Arts of the Union of Architects of the Ukraine N. S.

Kolomiyets, Chairman of the Section of the Architecture of Apartment Houses of the Union of Architects of the Ukraine Yu. G. Repin, Chairman of the Section of Urban Development of the Union of Architects of the Ukraine V. I. Novikov, Chief of the Krymakiya Oblast Division for Construction Affairs and Architecture V. N. Fuklev, Chairman of the Board of the Zaporozh'ye Organization of the Union of Architects of the Ukraine S. P. Shestopal, Chief of the Administration of the General Plan of Glavkiyevproyekt N. Zh. Demin, Director of the L'vov Branch of the State Institute for the Planning of Cities Z. V. Pidlisnyy, Chairman of the Board of the Odessa Organization of the Union of Architects of the Ukraine V. K. Golovin, Chief of the Administration of Standard and Experimental Designing of Glavkiyevproyekt L. Kh. Mulyar and chief of a sector of the Kiev Zonal Scientific Research Design Institute of Standard and Experimental Designing of Apartment Houses and Public Buildings (KiyevZNIIEP) S. I. Laponogov took part in the discussion of the report.

The plenum adopted a decree aimed at the further improvement of the practice of the designing and construction of the cities of the Ukrainian SSR and the creation in them of a complete residential environment, which conforms to present requirements.

For the purpose of stepping up the public creative activity of the organizations of the Union of Architects of the Ukraine the plenum recommended the more extensive practice of organizing creative discussions, inspections and meetings to share experience and the more frequently holding of architectural contests, involving not only leading experts, but also young architects.

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CSO: 1821

CONSTRUCTION

SMALL, MEDIUM-SIZED CITIES IN NOVOSIBIRSKAYA OBLAST DISCUSSED

Novosibirsk SOVETSKAYA SIBIR' in Russian 15 Feb 80 p 2

[Article by I. Yeremin, Candidate of Architecture and Assistant Professor of NISI (Novosibirsk Institute of Construction Engineering imeni Kuybyshev): "In Design and in Actuality"]

[Text] There are more than 10 small cities in Novosibirskaya Oblast. And although each one of them has their own destiny, their own successes and difficulties, they have general problems which determine their present and certainly their future.

Modern small cities must introduce complete organization for the industrial zones, housing rayons, system of social, cultural and everyday institutions, etc., that would provide the most favorable conditions for the people's labor, day-to-day living and relaxation. Unfortunately, the development of a majority of cities in our oblast is proceeding at a slow pace, especially in planning civic improvements and municipal services. The problem of efficiently utilizing male and female residents in industry is still being poorly solved. There are many reasons for this and one of the chief ones concerns the location of industrial enterprises.

The necessity of organizing the development of large cities, accelerating the development of promising small cities, locating small enterprises, branches and specialized shops of operating associations, factories and plants in the latter was noted at the 25th CPSU Congress. In our oblast, industries in outlying districts are basically engaged in processing agricultural products. There are sizable enterprises only in Iskitim, Berdsk and Kuybyshev. This actively influences the development of the cities: it strengthens their material technical base, prevents migrations (especially young people) and makes it possible to carry on housing and cultural-everyday construction on a more intensive level.

The small cities of Novosibirskaya oblast occupy an advantageous economic and geographic location, are connected by rail and motor

vehicle routes that have important centers and are hooked up to the state electric power system. Therefore, it is thought that industry could be better developed here. However, many ministries and departments are attempting, as before, to concentrate it in Novosibirsk and because of this are setting limits on the social-economic development of the outlying districts. The situation is aggravated by the poor construction base in small cities. This is why new structures are not being erected here as quickly and are not of as good quality as they ought to be.

At the present time, all small and medium-sized cities have worked out and approved planning and construction schemes and a majority have detailed planning schemes for the central parts of the city. In accordance with them, new and old reconstructed housing apartments are being erected, civic improvements are being done, utility lines are being laid, and cultural and municipal services are being built. However, an analysis has shown that in the majority of cases final urban construction results have not been able to be achieved. For example, drastic replanning ideas and ideas of replacing almost all farmsteads and housing units with few stories in the available housing fund are the basis for the schemes. But when they are being worked out the construction base of the cities, which is very weak, is not taken into proper consideration. A significant portion of the existing buildings need to be torn down to accomplish in practice that which is planned. The possibilities of this are very limited both by the capital investments of these cities and due to a lack of developed industrial enterprises that generate urban construction.

In this regard a large portion of the reconstruction schemes remain only on paper. Or halfway decisions occur. For example, in the center of Tatarsk and Kargat only five-story buildings should be built according to the plan. In actuality, they became two-story buildings in Tatarsk and one can see single story buildings in Kargat.

A conclusion should be drawn. The approach of the reconstruction scheme should correspond to the developed level of urban construction which is achieved by a particular city, and should be determined by the actual financial and construction possibilities of each. A higher level of urban construction development and civic improvements has been achieved at the present time by those cities that have sufficiently large organizations that are oriented towards the construction of new and the expansion of existing industrial enterprises. They take all of the remaining construction concerns upon themselves. These are found only in Berdsk, Iskitim and Kuybyshev.

The remaining cities should adopt more flexible forms--reconstruction, which makes it possible to achieve an improvement in the standard of living and day-to-day living during the course of a particular period,

not so much due to the elimination of available housing as by means of utilizing it to its maximum. The process of restoring and renovating housing units with few stories is a conditional economic necessity. Capital repairs will make it possible to restore about half of the available housing in small cities and by means of this new construction will be half as expensive. Naturally, this will require that designers make calculations more carefully and analyze the amortization situation for housing, to give more attention to the complicated structure of streets and main highways and to take into consideration the particular "features" of each city.

Such a system promises many benefits. First, a final urban development effect may be achieved in a short period of time; secondly, reconstruction encompasses not just part but almost all of the city; and thirdly, it eliminates the premature demolition of buildings that are still suitable for habitation.

The development of small cities in the oblast has much significance for the national economy. A complete scheme of rayon planning for the oblast has been worked out with the goals of systematically regulating their growth and distributing production capabilities evenly throughout the territory and which predetermines these questions over the long term period of 25 to 30 years. It allows for the creation of grouping systems for settlement which makes it possible to systematically regulate the growth of small and medium-sized cities in the oblast and to limit the unchecked growth of Novosibirsk.

I intentionally did not focus on certain individual cities. Everything that I am writing about is related practically to all of them. Yet, just the same, one should not think that small cities can be "groomed" with a single comb. They have a common problem yet its solution.... The flexibility of designers as well as those organizations which are entrusted with urban development should be manifest.

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CSO: 1821

METALWORKING EQUIPMENT

LAGS, DOWNFALLS IN MACHINE BUILDING INDUSTRY CRITICIZED

Moscow TRU in Russian 1 Feb 80 p 2

[Article by G. Khimich, chief of the Department for Interdisciplinary Problems of Machine Building at the Urals Scientific Center of the USSR Academy of Sciences, Corresponding Member of the USSR Academy of Sciences and Hero of Socialist Labor, from Sverdlovsk: "From Idea to Machine"]

[Text] Over many years of work, at least seven-score rolling mills have passed through my hands for Uralmash [Urals Machine Building Plant]. I was involved in the creation of some of them while still a quite green engineer, while others I designed myself. They are rolling metal at plants in the Ukraine and Siberia, and many have been "assigned" to the Urals and other regions of the country. There have been blooming mills, cold reduction mills, plate mills.... Are these good machines?

I would answer in the following manner (may I be forgiven by my colleagues and readers for the paradox and excessive categoricness): The machines are good, and they have only one crucial failing, they are poor.

This is the problem. If our equipment is judged from the viewpoint of the ideas incorporated, a majority of the machines merits the highest number of points. However, such an evaluation is clearly insufficient. How economic and efficient are these same rolling mills or continuous steel casting units? Are they dependable, are they convenient in use? Here are the questions to which as yet assuring answers cannot be given. Our equipment loses a great deal in the process of embodying the concept, in the production stage, and because of this the national economy suffers great losses.

First of all, the material intensiveness of many machines is inacceptably high. For example, in manufacturing shafts, axles, rings and rims, we spend 20 percent more metal than the leading foreign machine building firms. Due to the limited types and sizes of rolled metal and the use of irrational methods for manufacturing the pieces, Uralmash alone annually converts 100,000 tons of metal to chips. And as a whole for the nation, 8 million tons of metal are wasted.

Clearly this increases product costs as the expenditures on materials comprise around 70 percent of the value of machines manufactured individually or in small series.

We waste a great deal of metal, the machines are expensive, and at the same time their reliability is low. One-third of the machine tool fleet (and, respectively, the machine tool operators) in the machine building industry is engaged in manufacturing spare parts. In the sectors employing the machines, around 30 percent of the personnel does not produce a product, but merely maintains equipment in a working state. Such a situation in no way can be considered normal, particularly considering the universal shortage of manpower.

The short life of many parts and assemblies combined with poor repairability of the equipment, leads to a situation where the rolling mills, for example, stand idle 12-16 percent of the calendar time, or up to 1,450 hours a year. But a blooming mill is not a lathe. One hour of its downtime costs 450 rubles and hence, as a whole for the nation, the downtimes of rolling equipment "consume" 15 million rubles annually. Need it be said these are unhappy figures.

What is the cause of all this? I am convinced that the cause lies in machine building, a most important sector, which determines scientific and technical progress in all other sectors. Machine building has stood, as it were, on the sidelines of fundamental science and its scientific and theoretical bases have not been developed.

I am aware that this assertion will cause heated argument. Because the opinion has developed (certainly not by itself) that our science works actively for machine building. But this is only in words. In fact fundamental science is virtually not concerned with the problems of developing machines.

Am I wrong? Then name for me a scientific institution which could provide to the designer of a blooming mill recommendations on selecting optimum materials for working the surfaces of friction parts or lubricants for them that provide optimum reliability and durability.

And what are the methods for optimizing the gearing and combining the automatic controls with the designing of the machines and mechanisms? And what about determining a reliable range of load factors for the working parts and elements of the machines?

One could ask many timely questions related to the development of technology and an improvement in its quality and to which fundamental science today provides one exhaustive answer: "Unknown."

These are too narrow questions, let me anticipate the rejoinder, and fundamental science is concerned with the overall theory of reliability, the overall theory of friction, and.... But I am saying precisely that the

machine builders need not general but rather specific fundamental research in many areas related to definite types of machines.

This research was essential yesterday, it is extremely essential today, and tomorrow it will simply be indispensable for us. Such is the demand stemming from the present-day trends in the development of machine building.

For successfully solving the fundamental task advanced by the party of improving production efficiency and work quality, the leading sectors of the national economy must be provided with production methods and systems of machines which create continuous production processes.

For example, the obtaining of rolled metal directly from molten steel provides an opportunity to exclude such conversions as casting the steel into molds, heating and rolling the ingots into billets. Labor and energy expenditures are significantly reduced and metal losses decline. If with the existing process 650-750 kg of rolled metal are produced from a ton of steel, with the continuous method it would be possible to obtain 850-950 kg. That is, the introduction of the continuous process into all ferrous metallurgy will increase the production of merchant bar products by 20-25 percent without an increase in steel casting.

The continuous process creates maximum conditions for full mechanization and automation. And this means quality will sharply rise. And this means that man is eliminated from the immediate execution of individual production operations, and his role is to control the automatic controls of machine technology.

Thus, for creating the technology of continuous production processes and, correspondingly, large machine systems, it is essential to have a concentration of scientific forces on solving a very extensive range of problems. For example, it is impossible to obtain merchant bar products from molten steel without the participation of physicists, chemists, metallurgists, metallurgical workers, heating engineers, mathematicians and automation specialists.... This is the company we need! But it does not exist.

In truth, about 1 year ago at the Urals Scientific Center, a department was set up for the interdisciplinary problems of machine building. We do not deceive ourselves in saying this was a timely measure, as the time was missed. And more decisive steps are needed to make up the missed. And here we can scarcely get by without specialized academy institutions (and in the meantime even the only institute of mechanical engineering has not been returned to the system of the USSR Academy of Sciences; this institute some time ago was arbitrarily removed from the Academy). Furthermore it is essential to create a unified center which could harmoniously coordinate all scientific work in the area of machine building.

The tasks of the development of machine building, of course, are equally acute for the production workers. The best means for shortening the path from the idea to the machine is to create scientific-production associations, and this requires no proof. The general contracts concluded by scientific

institutions and enterprises, scientific subdivisions under joint authority, and other forms of cooperation have also proven effective. But in any instance an experimental base should be available to the designer of machines. To be without this is like a knight without a horse and certainly without a weapon.

I recall my conversation with the chief designer of one American firm. "How do you build your machines?" I asked him. "Very simply: I think, I think, and I think some more. Then I swear to the firm's management that the machine I have thought up is good and will provide a great benefit." "And if you are mistaken?" "If this happened even once, I would not be the chief designer."

"I think, and I think..." this, of course, is all to the good. But I am no novice in business, and I did not leave the American until he had admitted that he never proposed a machine to his boss until he had tested it as an experimental model. He had excellent experimental production, and in fact it was a simple secret.

Our large plants also have experimental shops. But quite often they are concerned not with what they should be, but, as a rule, are harnessed to the common team and "make a plan." They are perpetually undermanned and undersupplied. They are the ugly ducklings. But perhaps the plant directors do not realize the importance of these subdivisions? They are perfectly aware of this. But a majority of them reasons in precisely the same manner as a director in a good film: "I am accountable for each quarter individually, and not for my entire life." Experimental models are for tomorrow, but the plan is needed today.

For reeducating such leaders, the following measure seems effective to me. It is essential to provide for the manufacturing of experimental machines on a planned basis, within the limits of 1 percent (more is not required) of the annual production volume for the articles of the corresponding product range of the enterprise. This will provide an opportunity to practically test out the design ideas considering the scale factor, and this, of course, will be more than repaid in manufacturing the future machine. Moreover, an experimental model is no toy, and it itself in a predominant majority of instances can be used in production.

One of the metallurgical plants purchased a fundamentally new stand made at Uralmash as an experiment for a continuous billet mill. It made it possible to obtain a double drawing with a significant rise in the quality of the billets. Everyone was satisfied. But we had to do this basically by deceit: as the chief designer, I simply entered the parts and assemblies of the experimental stand in the plan orders. I am revealing this "secret" not because I no longer work at Uralmash, but because I know that this is no secret for anyone. Many other plants have done and are doing this. But why must an extremely necessary and completely advantageous matter be done as deception?

The further development of machine building was discussed with particular concern at the November (1979) Plenum of the CPSU Central Committee. This concern is fully understandable, and we must respond to it by decisive and concrete actions.

SELECTIVE LIST OF JPRS SERIAL REPORTS

USSR SERIAL REPORTS (GENERAL)

USSR REPORT: Agriculture
USSR REPORT: Economic Affairs
USSR REPORT: Construction and Equipment
USSR REPORT: Military Affairs
USSR REPORT: Political and Sociological Affairs
USSR REPORT: Energy
USSR REPORT: International Economic Relations
USSR REPORT: Consumer Goods and Domestic Trade
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USSR REPORT: Transportation
USSR REPORT: Translations from KOMMUNIST*
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USSR REPORT: USA: ECONOMICS, POLITICS, IDEOLOGY*

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USSR REPORT: Life Sciences: Effects of Nonionizing Electromagnetic Radiation
USSR REPORT: Life Sciences: Agrotechnology and Food Resources
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USSR REPORT: Electronics and Electrical Engineering
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